- General

The supplemental restraint system (SRS) is designed to supplement the seat belt to help reduce the risk or severity of injury to the driver and passenger by activating and deploying the driver, passenger, side airbag and belt pretensioner in certain frontal or side collisions.

The SRS (Airbag) consists of ; a driver side airbag module located in the center of the steering wheel, which contains the folded cushion and an inflator unit ; a passenger side airbag module located in the passenger side crash pad contains a folded cushion assembled with an inflator unit ; side airbag modules located in the front seat contain a folded cushion and an inflator unit ; curtain airbag modules located inside the headliner contains folded cushions and inflator units. The impact sensing function of the SRSCM is carried out by an electronic accelerometer that continuously measures the vehicle's acceleration and delivers a corresponding signal through amplifying and filtering circuitry to the microprocessor.

SRSCM (SRS Control Module)

SRSCM will detect front impact with a front impact sensor, and side impact with a side impact sensor to determine airbag module deployment.

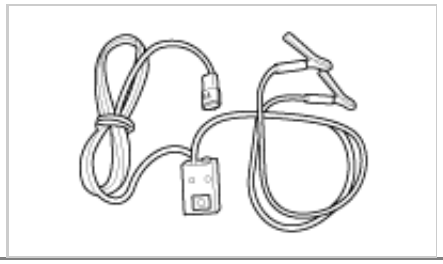
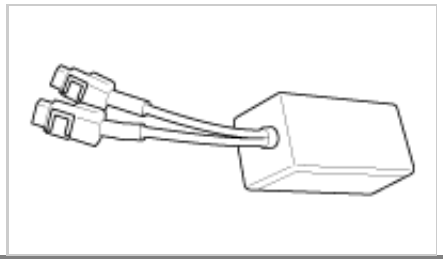
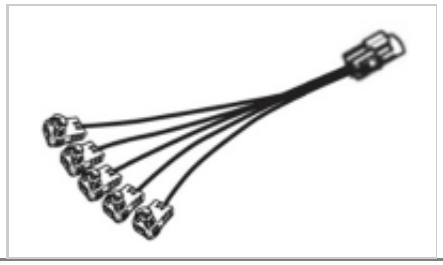
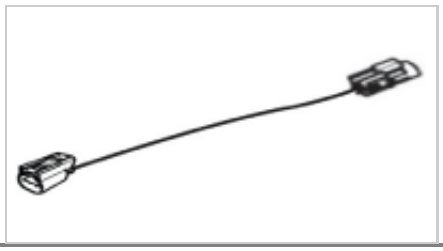
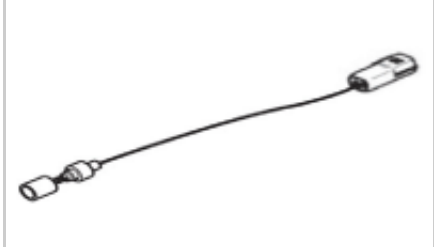
1. DC/DC converter : DC/DC converter in the power supply unit includes up/down transformer converter, and provide ignition voltage for 2 front airbag ignition circuits and the internal operation voltage of the SRSCM. If the internal operation voltage is below critical value setting, it will perform resetting.
2. Back up power supply : SRSCM has a separate back up power supply, that will supply deployment energy instantly in low voltage condition or upon power failure by a frontal crash.
3. Self diagnosis : SRSCM will constantly monitor current SRS operation status and detect system failure while vehicle power supply is on, system failure may be checked with trouble codes using GDS.
4. Airbag warning lamp on : When an error is detected, the module will transmit a signal to the SRSCM indicator lamp located on the cluster. MIL lamp will notice the driver of SRS error. Upon ignition key on, SRS lamp will turn on for about six seconds.
5. Trouble code registration : When an error occur in the system, SRSCM will store a DTC corresponding to the error. DTC can be cleared only by GDS. However, if an internal fault code is logged or if a crash is recorded the fault clearing should not happen.
6. Self diagnostic connector : Data stored in SRSCM memory will be output to GDS or other external output devices through connector located below driver side crash pad.
7. Once airbag is deployed, SRSCM should not be used again but replaced.
8. SRSCM will determine whether passenger put on seat belt by the signal from built-in switch in seat belt buckle, and deploy front seat airbag at each set crash speed.
9. Side airbag deployment will be determined by the SRSCM that detects satellite sensor impact signal upon a side crash, irrespective to the seat belt condition.

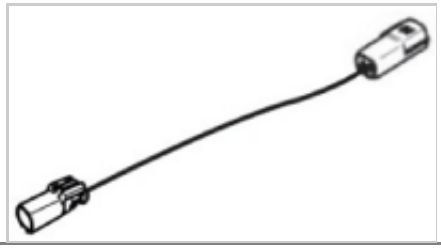
- Tightening Torques

Item	N.m	kgf.m	lb-ft
Passenger Air Bag	8.8 - 10.8	0.9 - 1.1	6.5 - 8.0
Curtain airbag (CAB) bolt	7.8 - 11.8	0.8 - 1.2	5.8 - 8.7
Curtain airbag (CAB) but	3.9 - 5.9	0.4 - 0.6	2.9 - 4.3
Side airbag (SAB)	5.9 - 7.8	0.6 - 0.8	2.9 - 5.8
Seat belt anchor bolt (BPT)	39.2 - 53.9	4.0 - 5.5	28.9 - 39.7
SRS control module (SRSCM)	9.5 - 13.6	1.0 - 1.4	7.0 - 10.0
Front impact sensor (FIS)	8.0 - 10.0	0.8 - 1.0	5.9 - 7.4
Gravity side impact sensor (P-SIS)	2.0 - 3.0	0.2 - 0.3	1.5 - 2.2
Pressure side impact sensor (G-SIS)	8.0 - 10.0	0.8 - 1.0	5.9 - 7.4

Rear Gravity side impact sensor (R-SIS)	8.0 - 10.0	0.8 - 1.0	5.9 - 7.4
Knee airbag (KAB)	7.8 - 11.8	0.8 - 1.2	5.8 - 8.7

- Special Service Tools

Tool(Number and Name)	Illustration	Use
Deployment tool 0957A-34100A		Airbag deployment tool. Use with (0957A-AL140, 0957A-AL160)
Dummy 0957A-38200		Simulator to check the resistanceof each wiring harness. Use with (0957A-AL170, 0957A-AL190)
Airbag deployment & dummy adapter kit 0957A-AL100		Use with airbag deployment and airbag inspection.
Deployment adapter 0957A-AL140		Use with deployment tool. (0957A-34100A) (DAB, PAB, CAB, FBPT, KAB)
Deployment adapter 0957A-AL160		Use with deployment tool. (0957A-34100A) (SAB)
Dummy adapter 0957A-AL170		Use with dummy. (0957A-38200) (DAB, PAB, CAB, FBPT, KAB)

Dummy adapter 0957A-AL190		Use with dummy. (0957A-38200) (SAB)

DAB : Driver Airbag
PAB : Passenger Airbag
SAB : Side Airbag
CAB : Curtain Airbag
BPT : Seat Belt Pretensioner

- Precautions

General Precautions

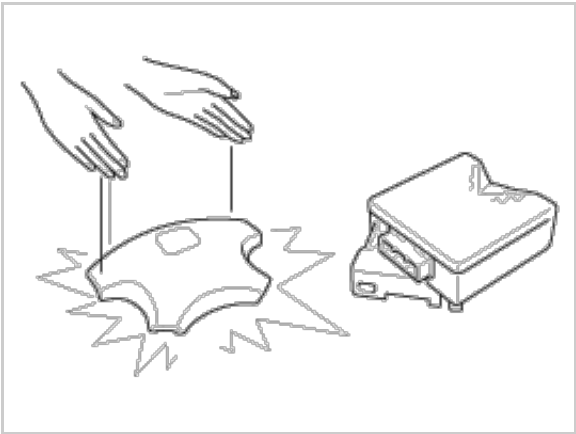
Please read the following precautions carefully before performing the airbag system service.
Observe the instructions described in this manual, or the airbags could accidentally deploy and cause damage or injuries.

- When performing electrical inspections, always turn the ignition switch OFF and disconnect the negative cable from the battery, and wait at least three minutes before beginning work.

NOTICE

The contents in the memory are not erased even if the ignition switch is turned OFF or the battery cables are disconnected from the battery.

- Use the replacement parts which are manufactured to the same standards as the original parts and quality.
  Do not install used SRS parts from another vehicle. Use only new parts when making SRS repairs.
- Carefully inspect any SRS part before you install it. Do not install any part that shows signs of being dropped or improperly handled, such as dents, cracks or deformation.



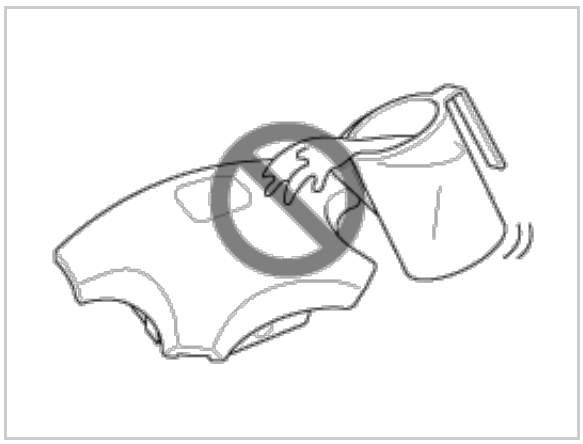
- Before removing any of the SRSCM parts (including the disconnection of the connectors), always disconnect the SRSCM connector.

Airbag Handling and Storage

Do not disassemble the airbags; it has no serviceable parts. Once an airbag has been deployed, it cannot be repaired or reused.
For temporary storage of the air bag during service, please observe the following precautions.

- Store the removed airbag with the pad surface up.
-

Keep free from any oil, grease, detergent, or water to prevent damage to the airbag assembly.

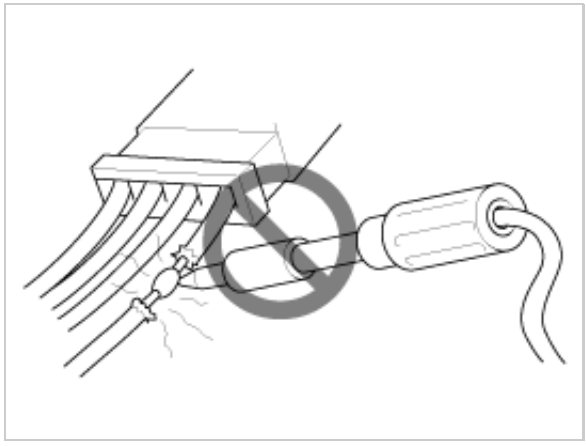


- Store the removed airbag on secure, flat surface away from any high heat source (exceeding 85 C/185 F).
- Never perform electrical inspections to the airbags, such as measuring resistance.
- Do not position yourself in front of the airbag assembly during removal, inspection, or replacement.
- Refer to the scrapping procedures for disposal of the damaged airbag.
- Be careful not to bump or impact the SRS unit or the side impact sensors or front impact sensors whenever the ignition switch is ON, wait at least three minutes after the ignition switch is turned OFF before begining work.
- During installation or replacement, be careful not to bump (by impact wrench, hammer, etc.) the area around the SRS unit and the side impact sensor and the front impact sensors. The airbags could accidentally deploy and cause damage or injury.
- Replace the front airbag module, SRSCM, and front impact sensor when the front air bag has deployed. Replace the airbag wiring when the airbag wiring gets damaged. Replace the side airbag module, the curtain airbag module, SRSCM, and side impact sensor when the side air bag has deployed. Replace the airbag when the airbag wiring gets damaged.
- After a collision in which the front airbags or the side air bags did not deploy, inspect for any damage or any deformation on the SRS unit and impact sensors. If there is any damage, replace the SRS unit, the front impact sensor and/or the side impact sensors.
- Do not disassemble the SRS unit, the front impact sensors or the side impact sensors.
- Turn the ignition switch OFF, disconnect the battery negative cable and wait at least three minutes before beginning installation or replacement of the SRS unit.
- Be sure the SRS unit, the front impact sensors and side impact sensors are installed securely with the mounting bolts.
- Do not spill water or oil on the SRS unit, or the front impact sensors or the side impact sensors and keep them away from dust.
- Store the SRS unit, the front impact sensors and the side impact sensors in a cool (15 - 25°C/ 59 - 77°F) and dry (30 - 80% relative humidity, no moisture) area.

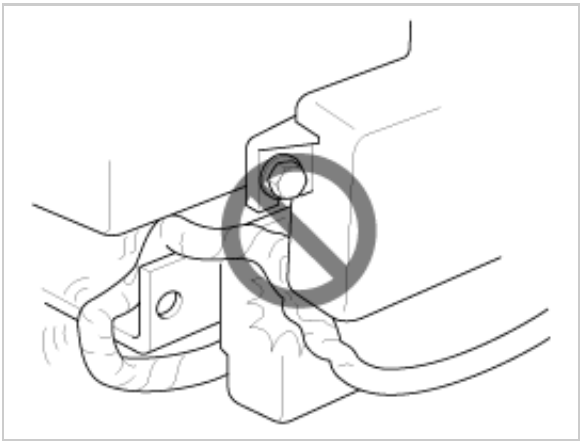
Wiring Precautions

SRS wiring can be identified by special yellow outer covering. Observe the instructions described in this section.

- Never attempt to modify, splice, or repair SRS wiring. If there is an open or damage in SRS wiring, replace the harness.



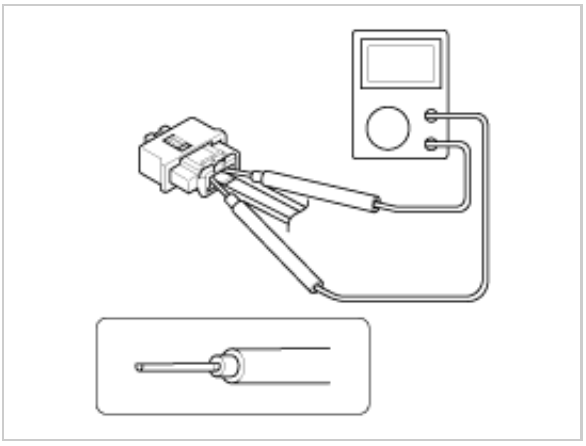
- Be sure to install the harness wires so that they are not pinched, or interfere with other parts.



- Make sure all SRS ground locations are clean, and grounds are securely fastened for optimum metal-to-metal contact. Poor grounding can cause intermittent problems that are difficult to diagnose.

Precautions for Electrical Inspections

- When using electrical test equipment, insert the probe of the tester into the wire side of the connector.
  Do not insert the probe of the tester into the terminal side of the connector, and do not tamper with the connector.



- Use a u-shaped probe. Do not insert the probe forcibly.
- Use specified service connectors for troubleshooting.
  Using improper tools could cause an error in inspection due to poor metal contact.

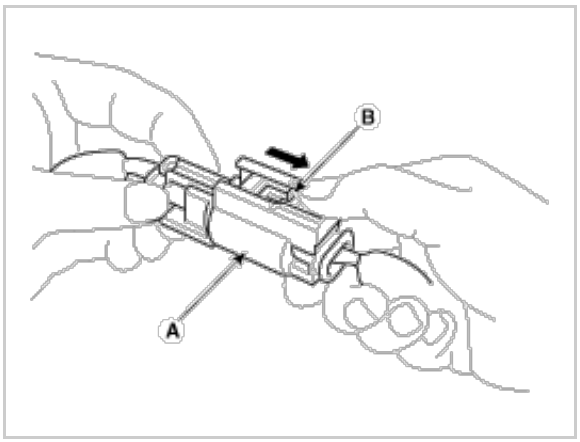
Spring-laded Lock Connector

Some SRS system connectors have a spring-loaded lock.

Airbag Connector

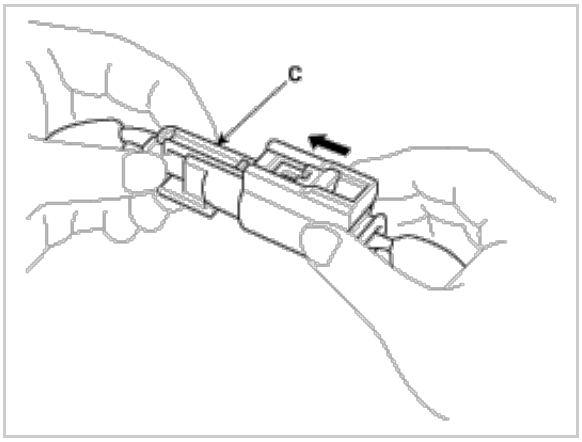
Disconnecting

To release the lock, pull the spring-loaded sleeve (A) and the slider (B), while holding the opposite half of the connector.
Pull the connector halves apart. Be sure to pull on the sleeve and not on the connector half.



Connecting

Hold both connector halves and press firmly until the projection (C) of the sleeve-side connector clicks to lock.



Restraint

- Warning Lamp Activation

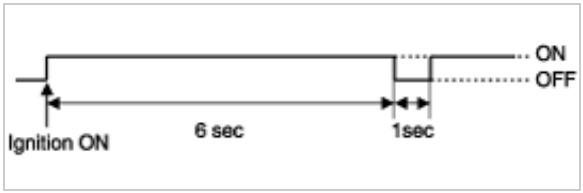
Warning Lamp Behavior after Ignition On

As soon as the operating voltage is applied to the SRSCM ignition input, the SRSCM activates the warning lamp for a LED lamp check.

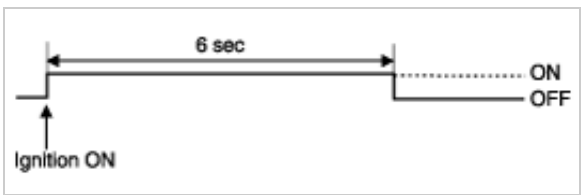
The lamp shall turn on for 6 seconds during the initialization phase and turn off afterward.

To alert the driver, the warning lamp shall turn on for 6 seconds and off for one second then on continuously after the operating voltage is applied if any active fault exists.

1. Active fault or historical fault counter is greater or equal to 10.



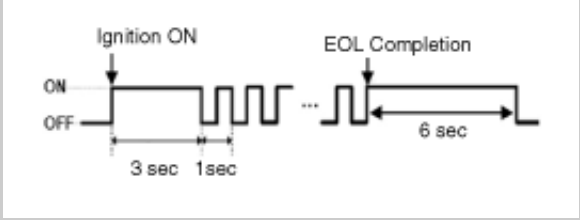
2. Normal or historical fault counter is less than 10.



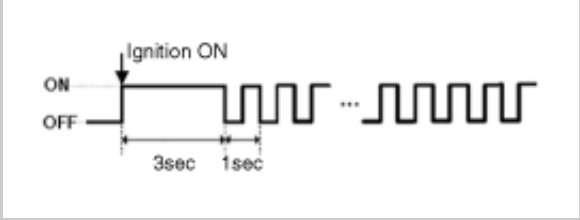
3. When turning the ignition switch ON during variant coding (EOL) mode, the airbag warning lamp is turned on and blinks at intervals of 1 second till the coding is completed.

In case the variant coding is normally completed, the airbag warning lamp is turned on for 6 seconds, and then turned off. Otherwise the airbag warning lamp continuously blinks at intervals of 1 second.

(1) In case the variant coding is normally completed



(2) In case the variant coding is not completed.



When there is active fault in the airbag system or SRSCM internal fault, the variant coding (EOL) cannot be completed. In this case, do the variant coding (EOL) procedure again after troubleshooting with the GDS.

SRSCM Independent Warning Lamp Activation

There are certain fault conditions in which the SRSCM cannot function and thus cannot control the operation of the standard warning lamp. In these cases, the standard warning lamp is directly activated by appropriate circuitry that operates independently of the SRSCM. These cases are:

1. Loss of battery supply to the SRSCM : warning lamp is turned on continuously.
2. Loss of internal operating voltage : warning lamp is turned on continuously.
3. Loss of microprocessor operation : warning lamp is turned on continuously.
4. SRSCM not connected : warning lamp is turned on continuously.

Telltale Lamp Activation

Condition and operation in the front passenger Occuoant Classification System

Condition detected bt theoccupant classification system	Indicator/Warning light		Devices
	"PASSENGER AIR BAG OFF"indicator light	SRSwarning light	Front passenger air bag
1. Adult *1	Off	Off	Activated
2. Infant *2 or child restraintsystem with 12 months old *3*4	On	On	Deactivated
3. Unoccupied	On	Off	Deactivated
4. Malfunction in the system	Off	On	Activated

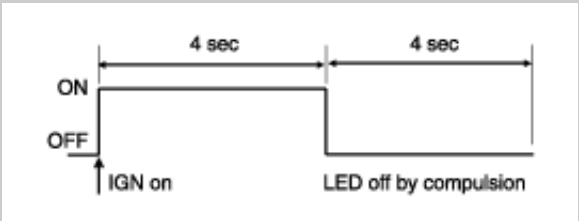
*1 The system judges a person of adult size as an adult. When a smaller adult sits in the front passenger seat, the system may recognize him/her as a child depending on his/her physique and posture.

*2 Do not allow children to ride n the front passenger seat. Whena larger child who has out-grown a child restraint system sits in the front passenger seat, the system may recognize him/her as an adult depending upon his/her physique or sitting position.

*3 Never install a child restraint system on the front passenger seat.

*4 The PASSENGER AIR BAG "OFF" indicator may turn on or off when a child above 12 months to 12 yrars old (with or without child restraint system) sits in the front passenger seat. This is a mormal condition.

After ignition on, telltale lamp will turn on for 4 seconds and turn off for 4 seconds during the initialization phase and be turned off afterward until receipt of first valid suppression message from OCS system.



- Component Replacement after Deployment

NOTICE

- Check the diagnosis trouble code (DTC) with diagnostic tool before the work related to the airbag system.

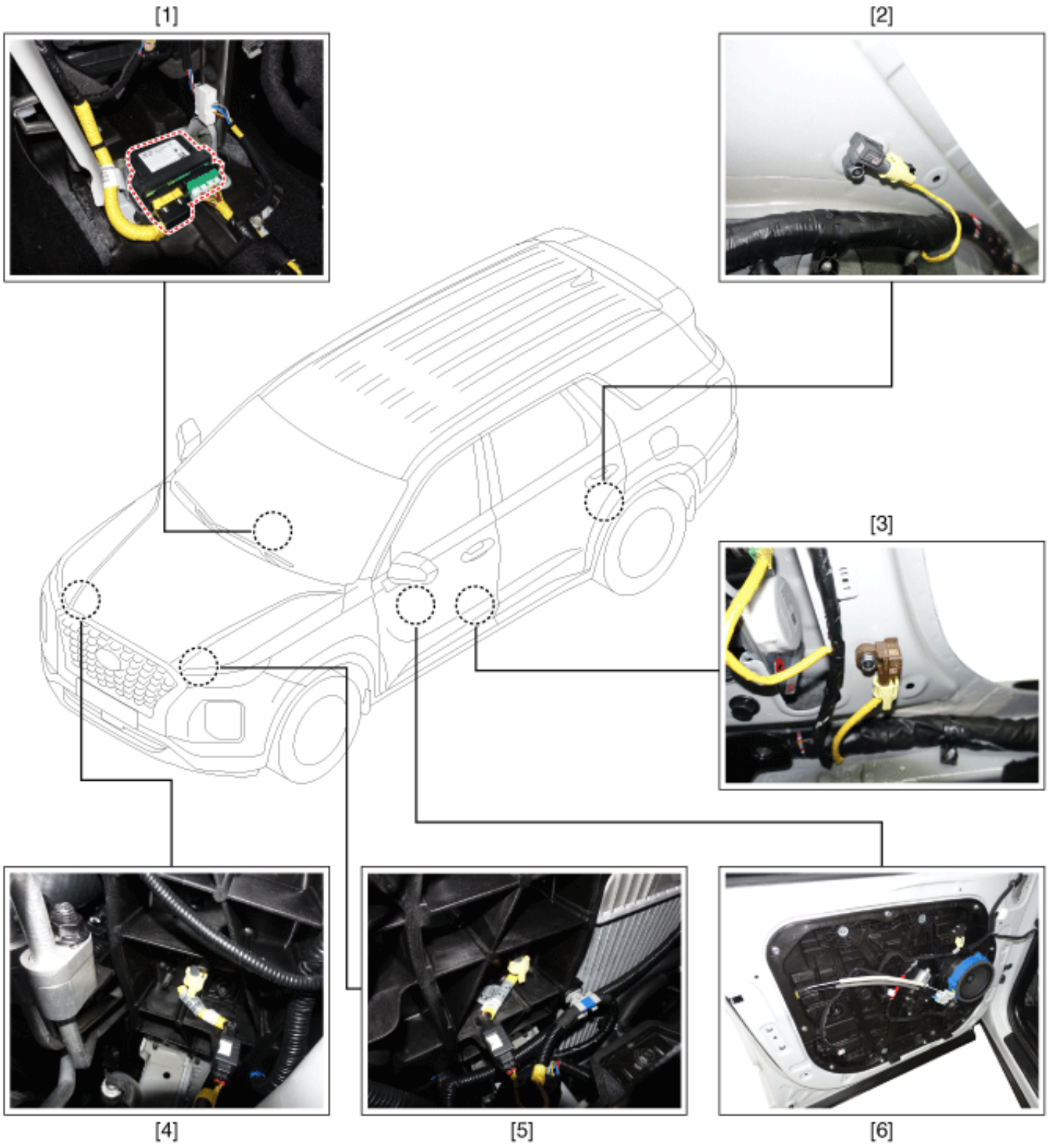
1. Minor Accidents - Stage 0 (no restraint deployment)
   - No pretensioner (belt)/airbag deployment due to minor accident
   – Seat belt replacement is not required
2. Minor Accidents - Stage 1 (Pretensioners only deployed)
   - Minor accidents can be protected only by deploying the pretensioner (belt)
   – Need to replace deployed seat belt
3. Minor accidents - Stage 2 (Pretensioner and airbag deployment)
   - Although the accident is minor, pretensioner (belt)/airbag needs to be deployed
   – Need to replace deployed seat belt/airbag

NOTICE

- Check that the airbag system operates normally after repairing the vehicle.

– The airbag warning light should illuminate for 3 - 6 seconds and goes off when the IG is ON.

- Components



1. Supplemental Restraint System Control Module (SRSCM)
2. Rear Gravity side Impact Sensor (G-SIS)
3. Front Gravity side Impact Sensor (G-SIS)
4. Front impact sensor (FIS)
5. Front impact sensor (FIS)
6. Pressure Side Impact Sensor (P-SIS)

- Description

The primary purpose of the SRSCM (Supplemental Restraints System Control Module) is to discriminate between an event that warrants restraint system deployment and an event that does not. The SRSCM must decide whether to deploy the restraint system or not. After determining that pretensioners and/or airbag deployment is required, the SRSCM must supply sufficient power to the pretensioners and airbag igniters to initiate deployment.

The SRSCM determines that an impact may require deployment of the pretensioners and airbags from data obtained from impact sensors and other components in conjunction with a safing function.

The SRSCM will not be ready to detect a crash or to activate the restraint system devices until the signals in the SRSCM circuitry is stabilized.

It is possible that the SRSCM could activate the safety restraint devices in approximately 2 seconds but is guaranteed to fully function after prove-out is completed.

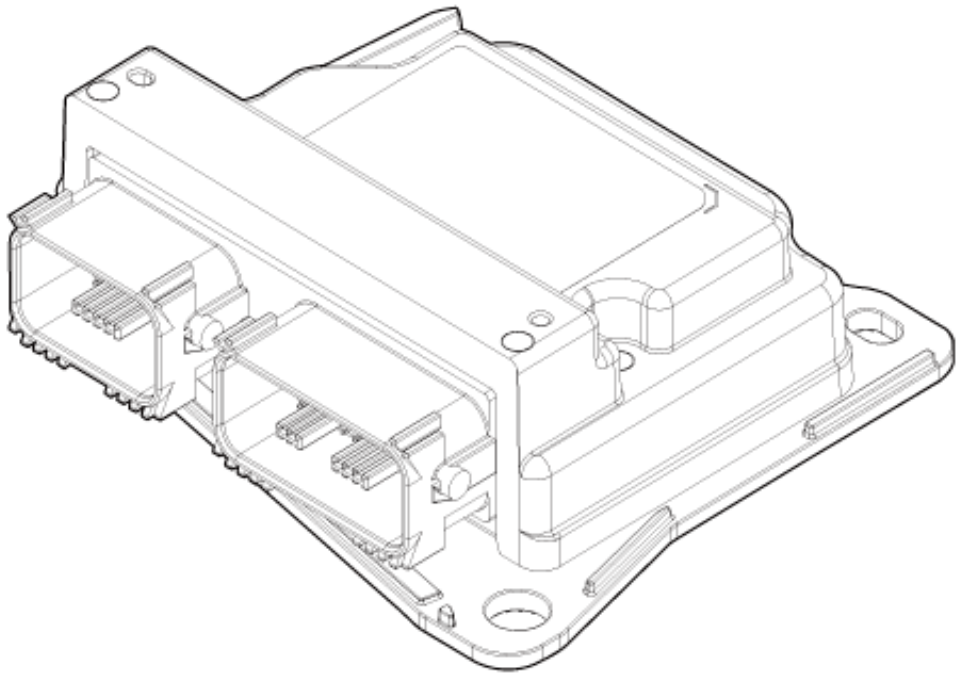
The SRSCM must perform a diagnostic routine and light a system readiness indicator when the ignition switch is in the ON position. The system must perform a continuous diagnostic routine and provide fault notice through a warning lamp indicator in the event of fault detection. A serial diagnostic communication interface will be used to facilitate servicing of the restraint control system.

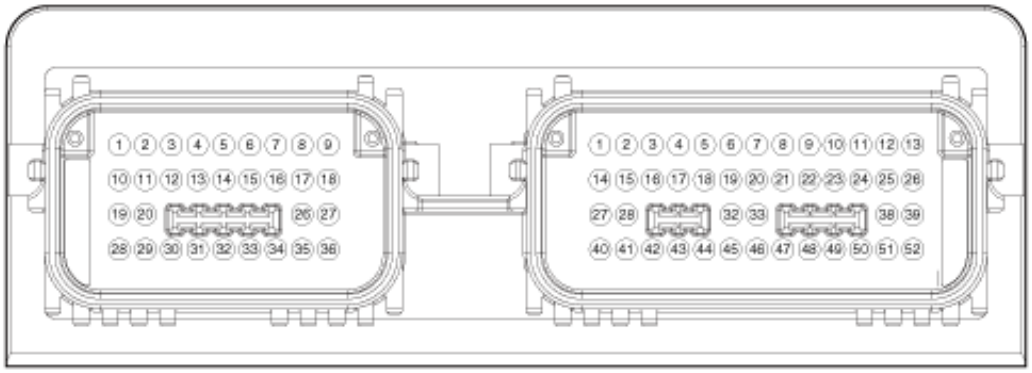
- Components

[LH]

1. Supplemental Restraint System Control Module (SRSCM)

- Supplemental Restraint System Control Module (SRSCM)





No	Connector A	Connector B
1	Driver airbag 2nd stage (High)	-
2	Driver airbag 2nd stage (Low)	-
3	Passenger airbag 2nd stage (Low)	-
4	Passenger airbag 2nd stage (High)	Rear left side airbag (Low)
5	-	Rear left side airbag (High)
6	-	Rear right side airbag (High)
7	Passenger airbag Active air vent (Low)	Rear right side airbag (Low)
8	Passenger airbag Active air vent (High)	Rear left pretensioner (Low)
9	-	Rear left pretensioner (High)

10	B+	Rear right pretensioner (High)
11	Crash output	Rear right pretensioner (Low)
12	Passenger airbag 1st stage (Low)	-
13	Passenger airbag 1st stage (High)	-
14	Driver Knee airbag (High)	-
15	Driver Knee airbag (Low)	-
16	Telltale lamp	-
17	-	Passenger curtain airbag (Low)
18	-	Passenger curtain airbag (High)
19	Driver airbag 1st stage - (High)	Driver curtain airbag (High)
20	Driver airbag 1st stage (Low)	Driver curtain airbag (Low)
21	-	Passenger side airbag (Low)
22	-	Passenger side airbag (High)
23	-	Driver side airbag (High)
24	-	Driver side airbag (Low)
25	-	-
26	C-CAN (Low)	-
27	C-CAN (High)	Driver seat belt pretensioner (Low)
28	IGN 1	Driver seat belt pretensioner (High)
29	Front driver impact sensor LH - (High)	-
30	Front impact sensor LH - (Low)	-
31	Front impact sensor RH - (Low)	-
32	Front impact sensor RH - (High)	Passenger seat belt pretensioner (High)
33	-	Passenger seat belt pretensioner (Low)
34	-	-
35	P-CAN (Low)	-
36	P-CAN (High))	-
37		-
38		-
39		-
40		Ground
41		Driver side rear impact sensor (Low)
42		Driver side rear impact sensor (High)
43		Driver pressure side impact sensor (High)
44		Driver pressure side impact sensor (Low)
45		Passenger pressure side impact sensor (Low)
46		Passenger pressure side impact sensor (High)
47		Driver side impact sensor (High)
48		Driver side impact sensor (Low)
49		Passenger side impact sensor (Low)
50		Passenger side impact sensor (High)
51		Passenger side rear impact sensor (High)
52		Passenger side rear impact sensor (Low)

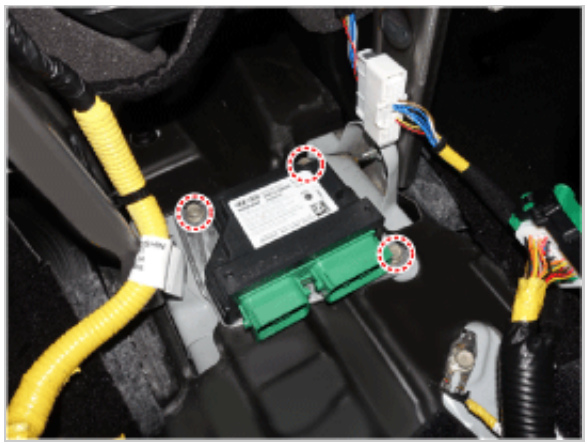
- Removal

1. Turn the engine OFF.
2. Disconnect the battery negative cable and wait for at least three minutes before beginning work.
3. Remove the floor console assembly.
   (Refer to Body - "Floor Console Assembly")
4. Loosen the mounting bolts and then remove the air duct.
5. Pull up the lock of the SRSCM connector to disconnect the connector.

6. Remove the SRSCM mounting bolts and then remove the SRSCM.

⚠ CAUTION

- You must remove or install the SRSCM or other SRS components with the ignition switch OFF to avoid accidental airbag deployment.



- Installation

1. Turn the engine OFF.
2. Disconnect the battery negative cable and wait for at least three minutes before beginning work.
3. Install the SRSCM with the SRSCM mounting bolts (3EA).

Tightening torque :
9.5 - 13.6 N.m (1.0 - 1.4 kgf.m, 7.0 - 10.0 lb-ft)

4. Connect the SRSCM harness connector.
5. Install the rear air duct.
6. Install the floor console assembly.
   (Refer to Body - "Floor Console Assembly")
7. Reconnect the battery negative cable.
8. After installing the SRSCM, confirm proper system operation:
   Turn the ignition switch ON; the SRS indicator light should be turned on for about six seconds and then go off.

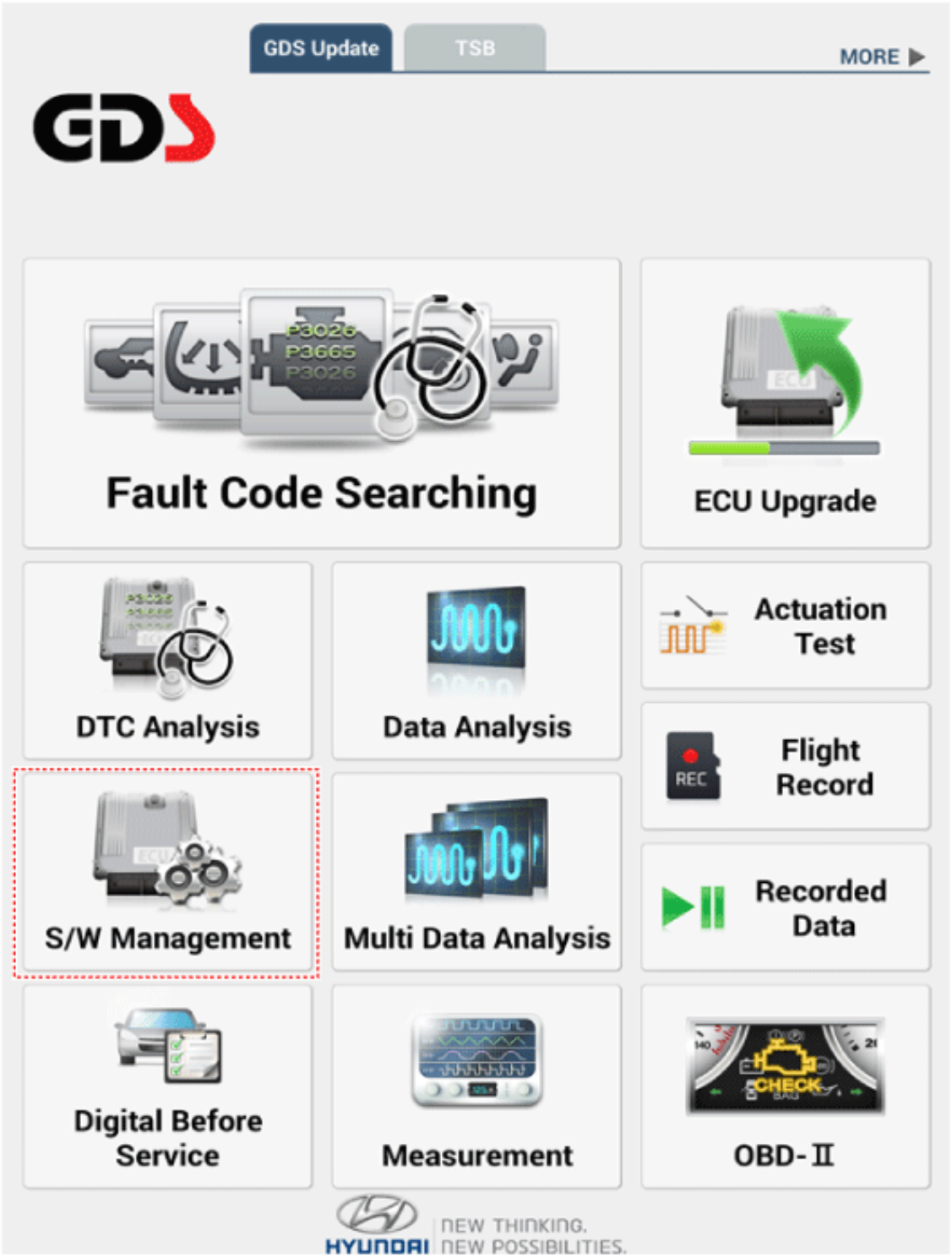
> **⚠ CAUTION**
>
> • If the SRSCM is replaced always, perform variant coding. Also, perform the lateral G sensor 0 point setup.
> (Refer to Brake System - "Yaw-rate and Lateral G Sensor")

- Variant Coding

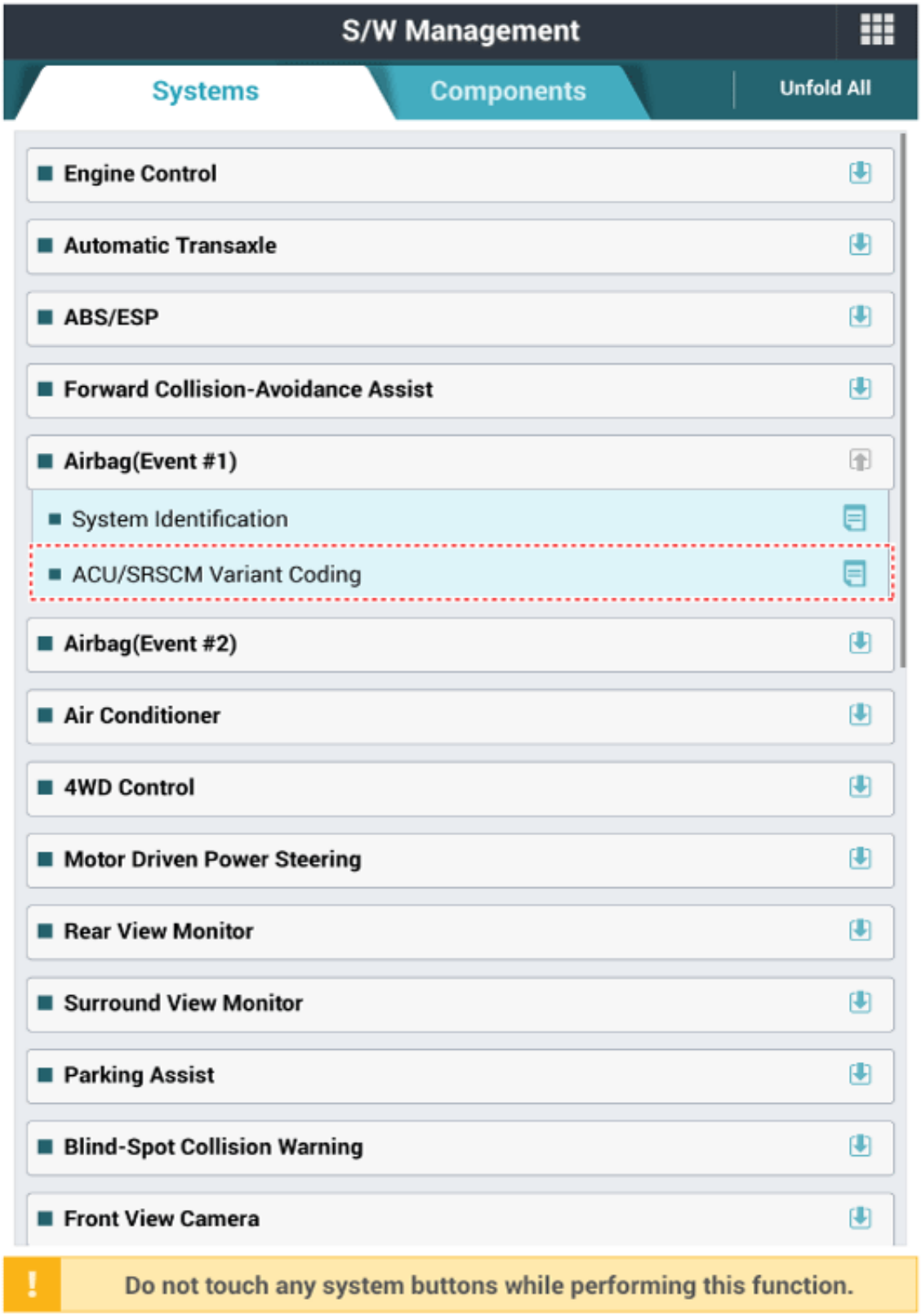
After replacing the SRSCM with a new one, the “Variant Coding” procedure must be performed.

Variant Coding Procedure

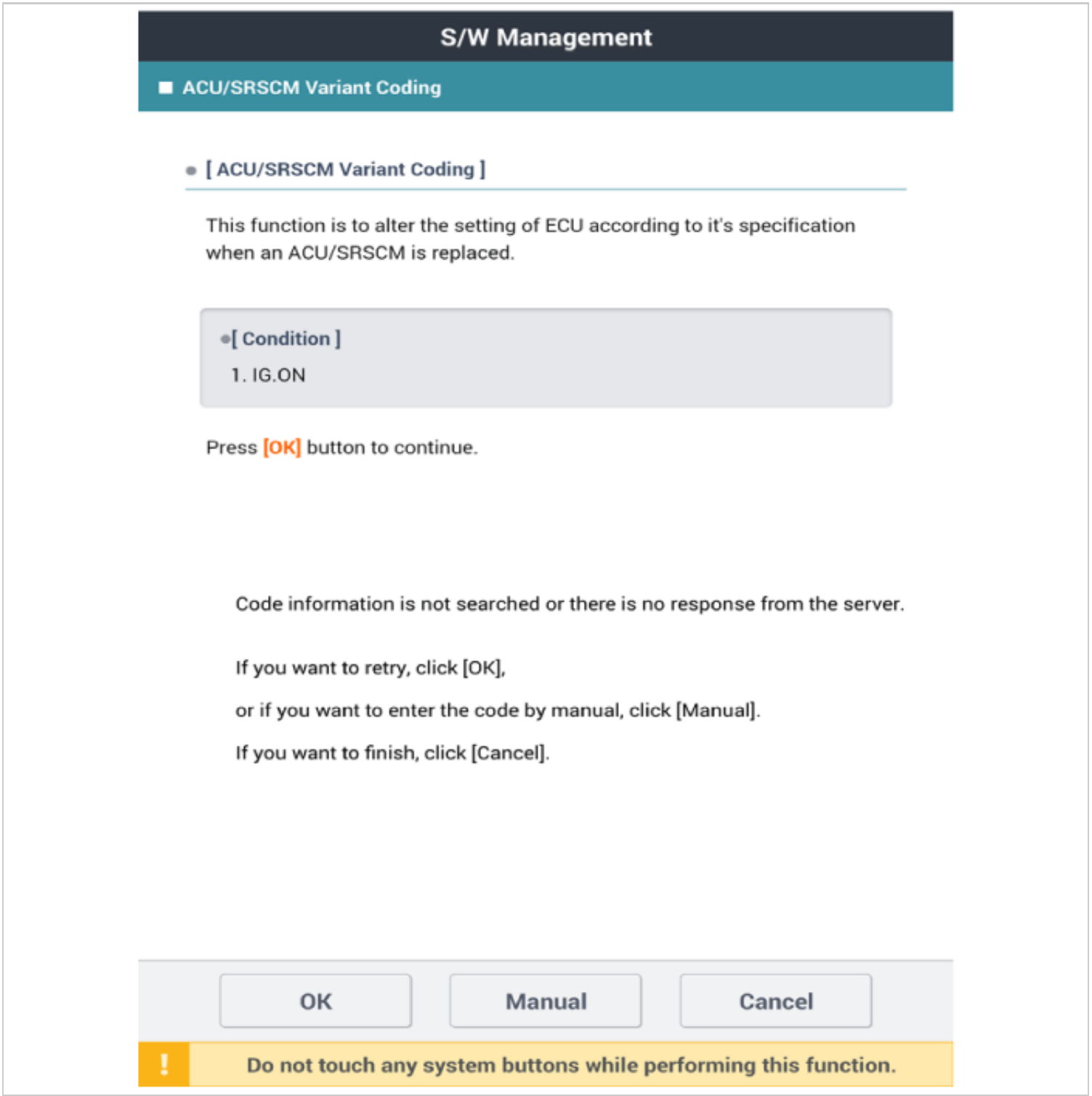
1. Connect the cable of GDS to the data link connector in driver side crash pad lower panel, and turn on the GDS.
2. Select the 'S/W Management' and 'Car model'.



3. Select "Airbag" and "ACU/SRSCM Variant Coding".



4. Perform the "ACU/SRSCM Variant Coding" procedure according to the GDS screen message.


S/W Management
ACU/SRSCM Variant Coding
[ACU/SRSCM Variant Coding]
This function is to alter the setting of ECU according to it's specification when an ACU/SRSCM is replaced.
[Condition]
1. IG.ON
Press [OK] button to continue.
Code information is not searched or there is no response from the server.
If you want to retry, click [OK],
or if you want to enter the code by manual, click [Manual].
If you want to finish, click [Cancel].
OK
Manual
Cancel
Do not touch any system buttons while performing this function.

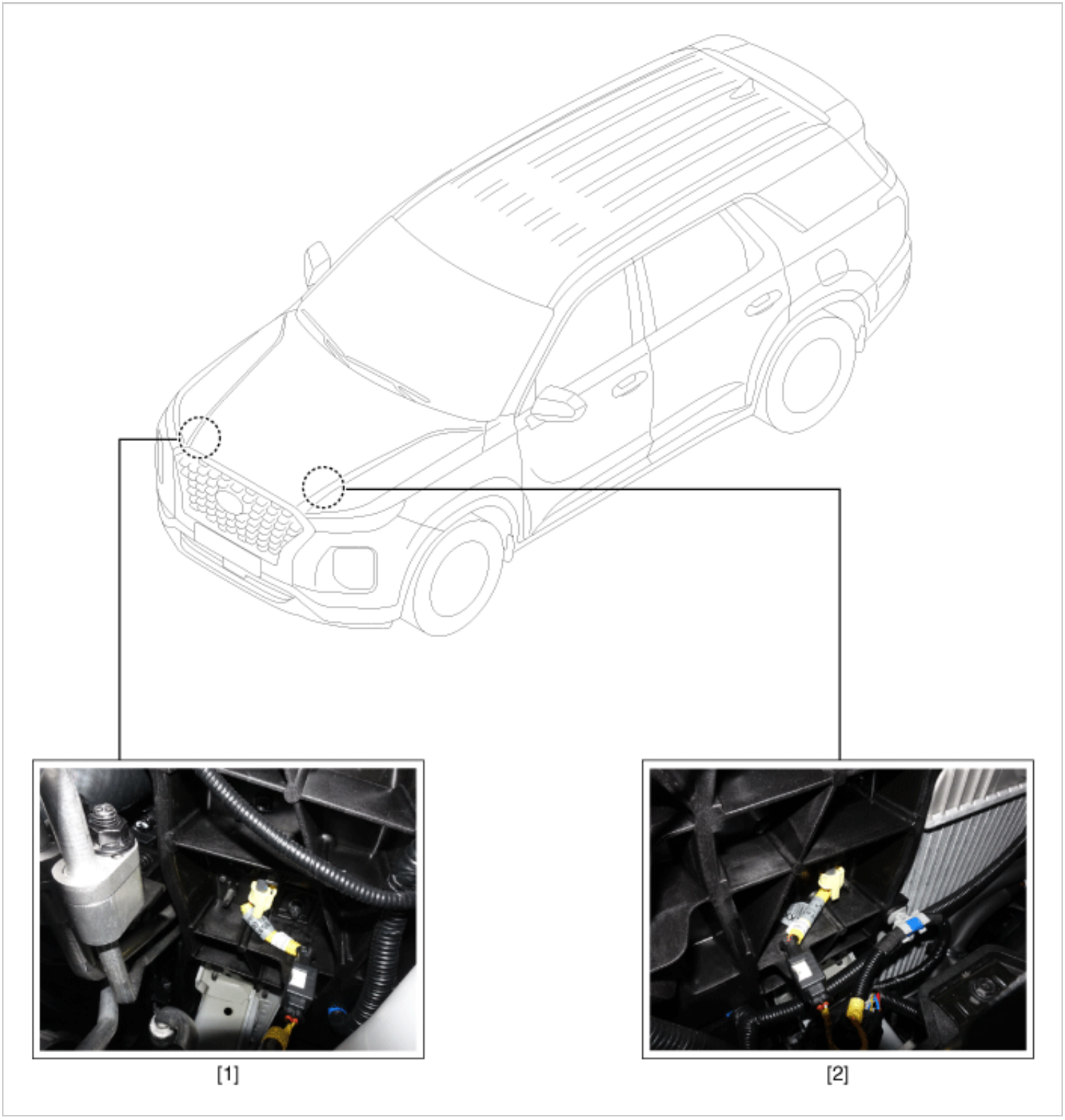
Restraint

- Description

The front impact sensor (FIS) is installed in the Front End Module (FEM). They are remote sensors that detect acceleration due to a collision at its mounting location. The primary purpose of the Front Impact Sensor (FIS) is to provide an indication of a collision. The Front Impact Sensor (FIS) sends acceleration data to the SRSCM.

Restraint

- Components



1. Front impact sensor (FIS)

2. Front impact sensor (FIS)

Restraint

- Removal

⚠ CAUTION

- Do not turn the ignition switch ON and do not connect the battery cable while replacing the front impact sensor.

1. Disconnect the battery negative cable, and wait for at least three minutes before beginning work.
2. Disconnect the front impact sensor connector (B) and then remove the front impact sensor (A) after loosening the mounting bolt.

- Installation

⚠ CAUTION

- Do not turn the ignition switch ON and do not connect the battery cable while replacing the front impact sensor.

1. Install a new front impact sensor.
2. Tighten the front impact sensor mounting nut.

   Tightening torque :
   8.0 - 10.0 N.m (0.8 - 1.0 kgf.m, 5.9 - 7.4 lb-ft)
3. Connect the front impact sensor connector.
4. Install the radiator assembly.
5. Reconnect the battery negative cable.
6. After installing the front impact sensor, confirm proper system operation :
   Turn the ignition switch ON; the SRS indicator light should turn on for about six seconds and then go off.

Restraint

- Description

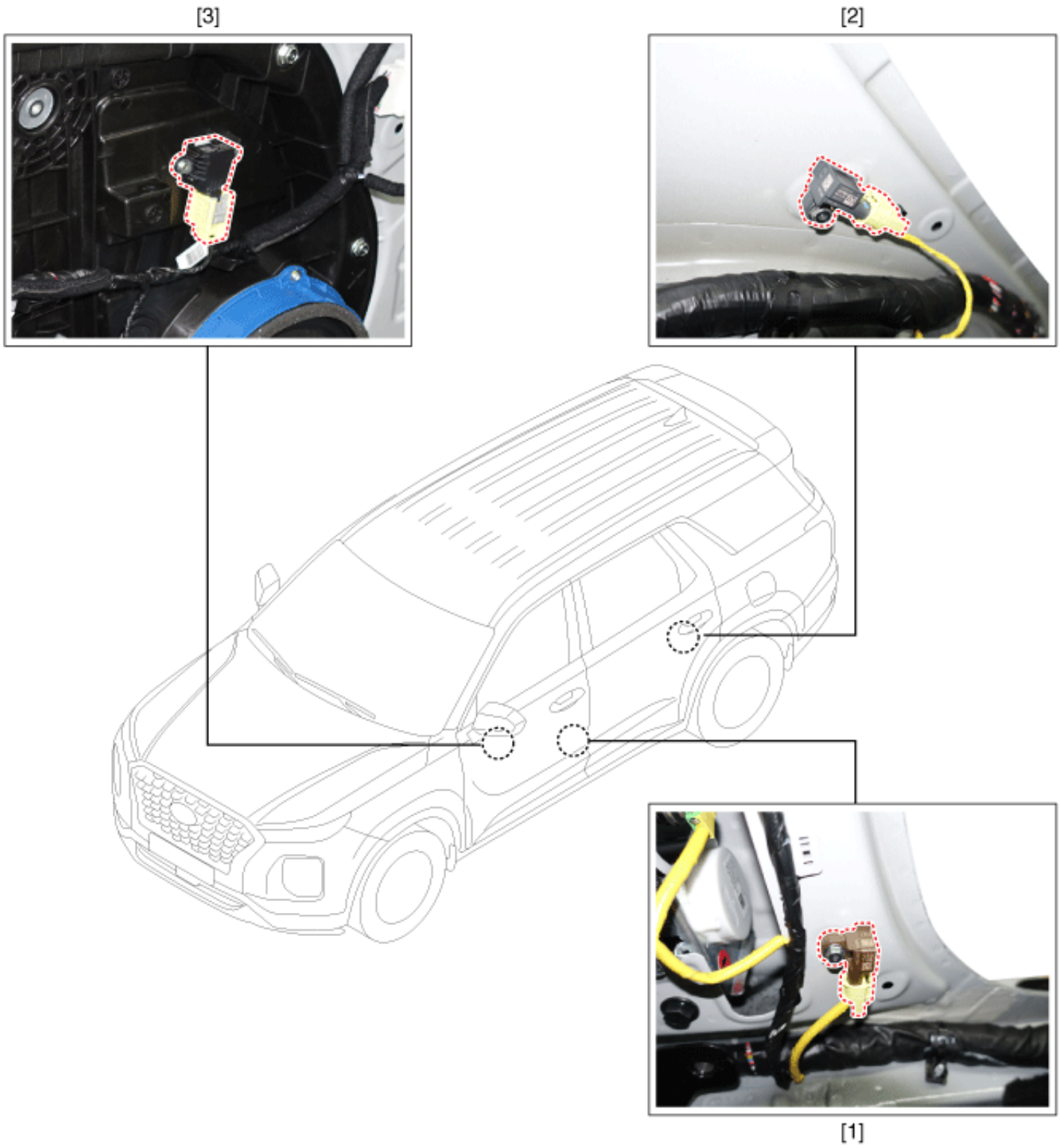
The Side Impact Sensor (SIS) system consists of two kinds of side impact sensor which are installed at each center of the front door module (left and right) and two rear sensors which are installed in the rear pillar (left and right).

- The Front Side Impact Sensor is also called P-SIS because it detects pressure due to collision at its mounting location.
- The Rear Side Impact Sensor is also called A-SIS because it detects acceleration due to collision at its mounting location.

SRSCM decides deployment of the airbag and the time of deployment through the collision signal of the SIS when collision occurrs.

Restraint

- Components



1. Gravity Side Impact Sensor [G-SIS (B-Pillar)]
2. Gravity Side Impact Sensor [G-SIS (C-Pillar)]
3. Front Pressure Side Impact Sensor (P-SIS)

Restraint

- Removal

⚠ CAUTION

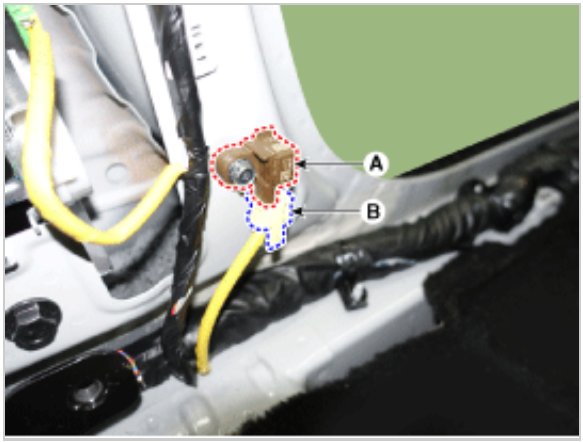
- Removal of the airbag must be performed according to the precautions/procedures described previously.
- Do not turn the ignition switch ON and do not connect the battery cable while replacing the side impact sensor.

Pressure Side Impact Sensor [P-SIS (Door)]

1. Disconnect the battery negative cable, and wait for at least three minutes before beginning work.
2. Remove the front door trim.
   (Refer to Body - "Front Door Trim")
3. Disconnect the connector and then remove the side impact sensor after loosening mounting bolt screws.

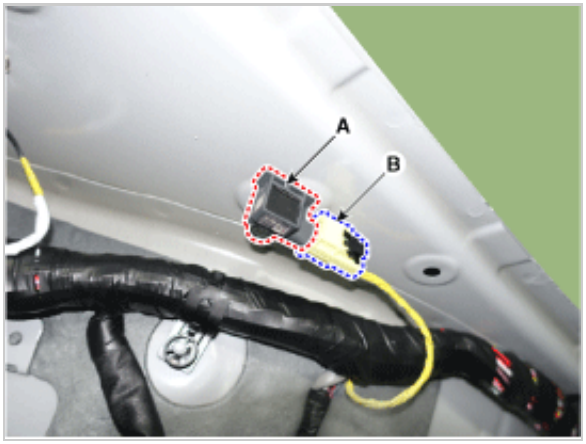
Gravity Side Impact Sensor [G-SIS (B Pillar)]

1. Disconnect the negative battery terminal, and wait for at least thirty seconds before beginning to work.
2. Remove the center pillar trim.
   (Refer to Body - "Center Pillar Trim")
3. Disconnect the connector (B) and then remove the side impact sensor (A) after loosening the mounting bolt.



Gravity Side Impact Sensor [G-SIS (C-Pillar)]

1. Disconnect the battery negative cable and wait for at least three minutes before beginning work.
2. Remove the luggage side trim.
   (Refer to Body - "Luggage Side Trim")
3. Disconnect the connector (B) and then remove the side impact sensor (A) after loosening the mounting bolt.



- Installation

⚠ CAUTION

- Do not turn the ignition switch ON and do not connect the battery cable while replacing the side impact sensor.

Pressure Side Impact Sensor [P-SIS (Door)]

1. Install the new front side impact sensor with the screws, then connect the front side impact sensor connector.

   Tightening torque :
   2.0 - 3.0 N.m (0.2 - 0.3 kgf.m, 1.5 - 2.2 lb-ft)

   ⚠ CAUTION

   - Use specified bolts only.

2. Install the front door trim.
   (Refer to Body - "Front Door Trim")
3. Reconnect the battery negative cable.
4. After installing the front side impact sensor, confirm proper system operation:
   Turn the ignition switch ON; the SRS indicator light should turn on for about six seconds and then go off.

Gravity Side Impact Sensor [G-SIS (C-Pillar)]

1. Install the new rear side impact sensor with a bolt and then connect the rear side impact sensor connector.

   Tightening torque :
   8.0 - 10.0 N.m (0.8 - 1.0 kgf.m, 5.9 - 7.4 lb-ft)

2. Install the luggage side trim.
   (Refer to Body - "Luggage Side Trim")
3. Reconnect the battery negative cable.
4. After installing the rear side impact sensor, confirm proper system operation:
   Turn the ignition switch ON; the SRS indicator light should turn on for about six seconds and then go off.

Gravity Side Impact Sensor [G-SIS(B-Pillar)]

⚠ CAUTION

- Do not turn the ignition switch ON and do not connect the battery cable while replacing the side impact sensor.

1. Install the side impact sensor with the bolt then connect the side impact sensor connector.

   Tightening torque :
   8.0 - 10.0 N.m (0.8 - 1.0 kgf.m, 5.9 - 7.4 lb-ft)

2. Install the luggage side trim.
   (Refer to Body - "Luggage Side Trim")
3. Reconnect the battery negative cable.
4. After installing the pressure side impact sensor, confirm proper system operation:
   - Turn the ignition switch ON; the SRS indicator light should be turned on for about six seconds and then go off.

⚠ CAUTION

- You must comply with the specified tightening torques with the tool specified because Gravity – Side Impact Sensors (G-SIS) may be broken or POP-NUT may be rotated.
- Problems may be occurred in the durability of G-SIS or impact sensing performance may be depreciated if POP-NUT is rotated.
- The door module must not be transformed because SRSCM judges a impact through the pressure sensor in the door module.

- Description

The SRSCM monitors the status of the driver and front passenger seat belt buckle. The SRSCM provides one pin each for the driver and front passenger seat belt buckle status input. The seat belt buckle circuit operates from internal boost voltage supplied by the SRSCM, and uses chassis ground for the signal return. The buckle status modify the SRSCM deployment. If the buckle status is unbuckled, the corresponding pretensioner will not be deactivated.

- Components

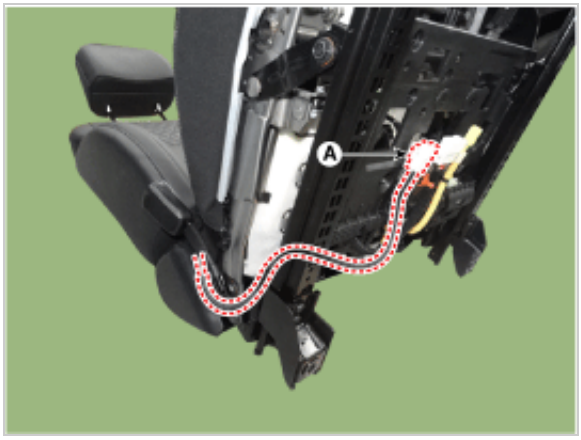
1. Seat belt buckle switch (BS)

Restraint

- Removal

1. Disconnect the battery negative cable, and wait for at least three minutes before beginning work.

2. Remove the front seat assembly.
   (Refer to Body - "Front Seat Assembly")
3. Remove the seat belt buckle switch wiring (A).



4. Remove the seat belt buckle switch by loosening the monuting bolt.

- Installation

⚠ CAUTION

- Be sure to install the harness wires so they will not pinch or interfere with other parts.

1. Install the seat belt buckle switch.
2. Install the front seat assembly.
   (Refer to Body - "Front Seat Assembly")
3. Reconnect the battery negative cable.
4. After installing the seat belt buckle switch, confirm proper system operation:
   Turn the ignition switch ON; the SRS indicator should turn on for about six seconds and then go off.

Restraint

- Description

In order to make normal activation of airbag system, SRSCM detects DTC(s) for the Occupant Classification System (OCS). If the seat is occupied, OCS detects passenger presences status and send signal to SRSCM via CAN.

SRSCM recognizes the signal as 2 (two) different classifications; that is, 1 (Empty or small occupant with child restraint system), 2 (Occupied with large occupant and small occupant).

With these signal, ACU determines whether it needs to deploy the PAB (Passenger Airbag) or not.

- Components

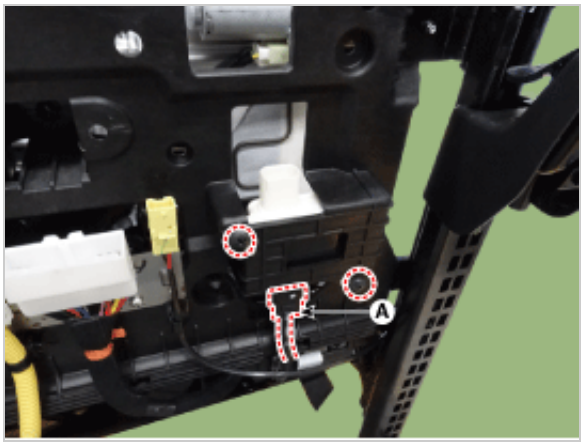
Occupant Classification System (OCS) System

1. Occupant Classification System(OCS) Unit
2. Occupant Classification System(OCS) Sensor

- Removal

Occupant Classification System (OCS) Unit

1. Disconnect the battery negative cable, and wait for at least three minutes before beginning work.
2. Remove the front passenger seat assembly.
   (Refer to Body - "Front Seat")
3. Disconnect the OCS ECU connector (A) and then remove the OCS Unit after loosening the mounting screw.



Occupant Classification System (OCS) Sensor

1. Disconnect the battery negative cable, and wait for at least three minutes before beginning work.
2. Remove the front passenger seat assembly.
   (Refer to Body - "Front Seat")
3. Disconnect the OCS sensor connector.
4. Remove the passenger seat cushion assembly.
   (Refer to Body - "Front Seat Cushion Cover")

- Installation

Occupant Classification System (OCS) Unit

1. Install the OCS ECU and sensor on the Front seat assembly.
2. Connect the OCS ECU connector.
3. Install the front passenger seat assembly.
   (Refer to Body - "Front Seat")
4. Reconnect the battery negative cable.
5. After installing the OCS, confirm proper system operation :
   - Turn the ignition switch ON the SRS indicator should be turned on for about six seconds and then go off.
   - Telltale lamp will turn on for 4 seconds and be turned off for 3 seconds. After the 7 seconds, it shall remain off if the OCS does not require suppression and the passenger airbag is enabled.

NOTICE

- Be sure to perform OCS reset with GDS after replacing OCS equipped seat cushion.

Occupant Classification System (OCS) Sensor

1. Install the passenger seat cushion assembly.
   (Refer to Body - "Front Seat Cushion Cover")
2. Connect the OCS sensor connector.
3. Install the front passenger seat assembly.
   (Refer to Body - "Front Seat Assembly")
4. Connect the battery negative cable.
5. After installing the OCS, confirm proper system operation :
   - Turn the ignition switch ON the SRS indicator should be turned on for about six seconds and then go off.
   - Telltale lamp will turn on for 4 seconds and be turned off for 3 seconds. After the 7 seconds, it shall remain off if the OCS does not require suppression and the passenger airbag is enabled.

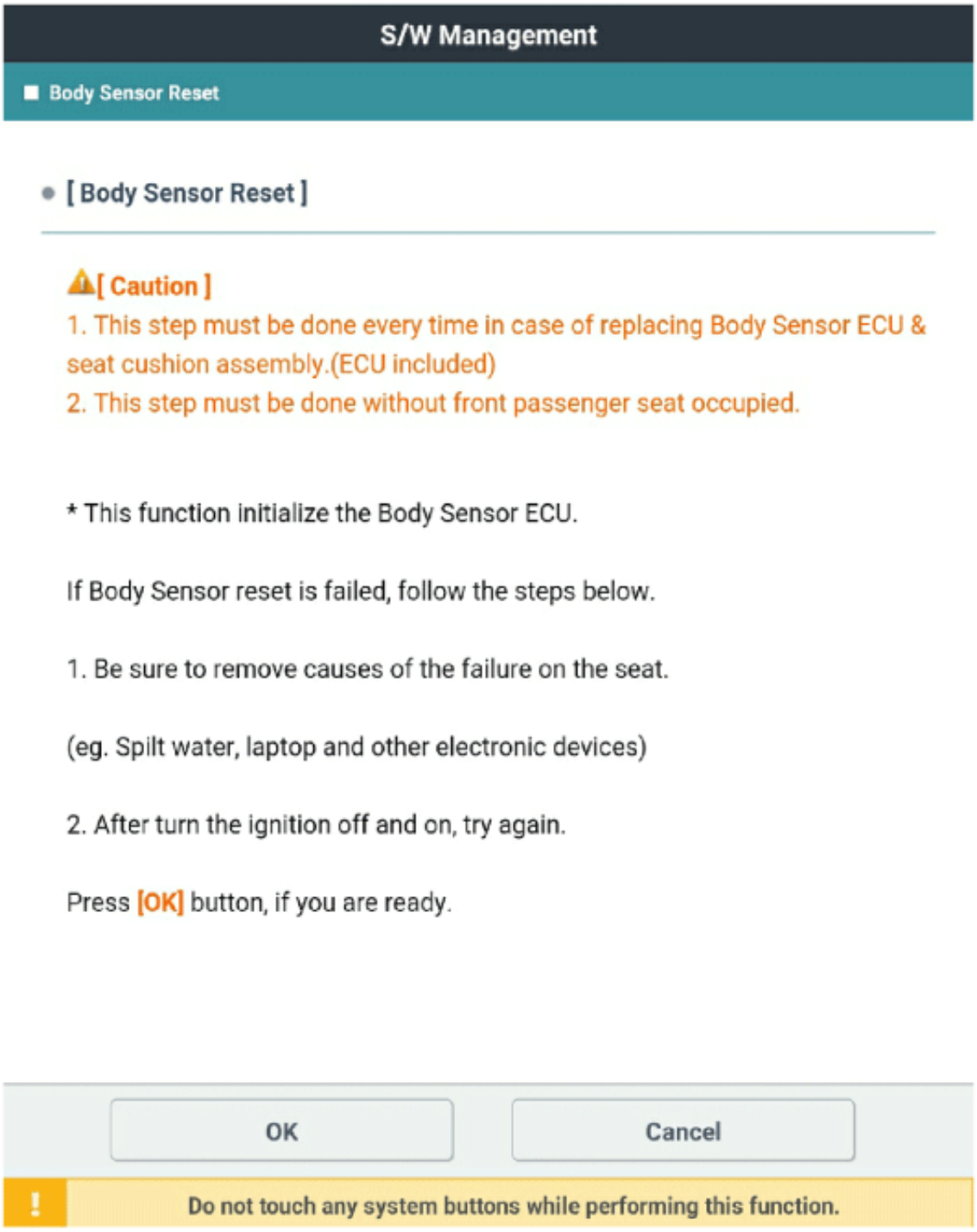
> **NOTICE**
>
> - Be sure to perform OCS reset with GDS after replacing OCS equipped seat cushion.

- Inspection

OCS Reset procedure

You should perform OCS Reset procedure after service or replacement about all part of the passenger seat. (Not included full seat assembly)

1. Ignition "OFF", connect GDS.
2. Ignition "ON" & Engine "OFF", select S/W Management and "Car model".
3. select OCS and "Body Sensor Reset".


S/W Management
Body Sensor Reset
[Body Sensor Reset]
[Caution]
1. This step must be done every time in case of replacing Body Sensor ECU & seat cushion assembly.(ECU included)
2. This step must be done without front passenger seat occupied.
* This function initialize the Body Sensor ECU.
If Body Sensor reset is failed, follow the steps below.
1. Be sure to remove causes of the failure on the seat.
(eg. Spilt water, laptop and other electronic devices)
2. After turn the ignition off and on, try again.
Press [OK] button, if you are ready.
OK
Cancel
Do not touch any system buttons while performing this function.

4. Perform the "Body sensor reset" procedure according to the GDS screen message.

Restraint

- Description

The Driver Airbag (DAB) is installed in the steering wheel and electrically connected to SRSCM via the clock spring. It protects the driver by deploying the airbag when frontal crash occurs. The SRSCM determines deployment of the Driver Airbag (DAB).

⚠ CAUTION

- Never attempt to measure the circuit resistance of the airbag module (squib) even if you are using the specified tester. If the circuit resistance is measured with a tester, accidental airbag deployment will result in serious personal injury.

- Components

1. Driver Airbag (DAB)
2. Steering Wheel
3. Clock Spring

- Inspection

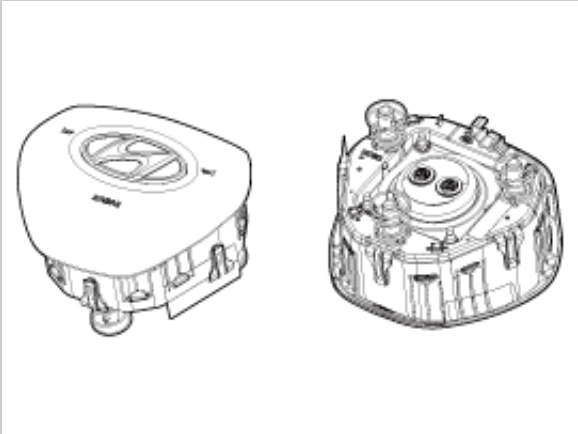
Driver Airbag (DAB)

If any improper parts are found during the following inspection, replace the airbag module with a new one.

⚠ CAUTION

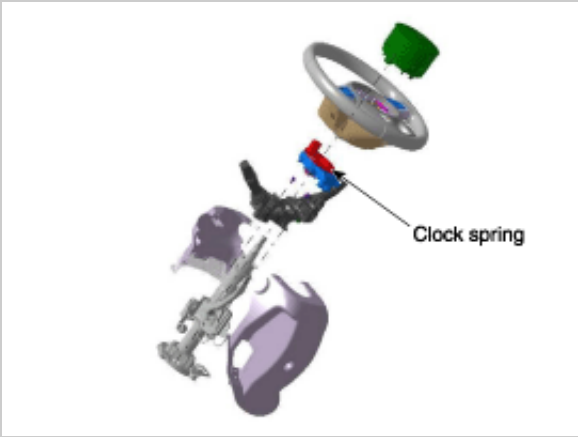
- Never attempt to measure the circuit resistance of the airbag module (squib) even if you are using a specified tester. If the circuit resistance is measured with a tester, accidental airbag deployment will result in serious personal injury.

1. Check pad cover for dents, cracks or deformities.
2. Check the airbag module for denting, cracking or deformation.
3. Check hooks and connectors for damage, terminals for deformities, and harness for binds.
4. Check airbag inflator case for dents, cracks or deformities.



Clock Spring

1. If any improper parts are found during inspection, replace the clock spring with a new one.
2. Check connectors and protective tube for damage, and terminals for deformities.



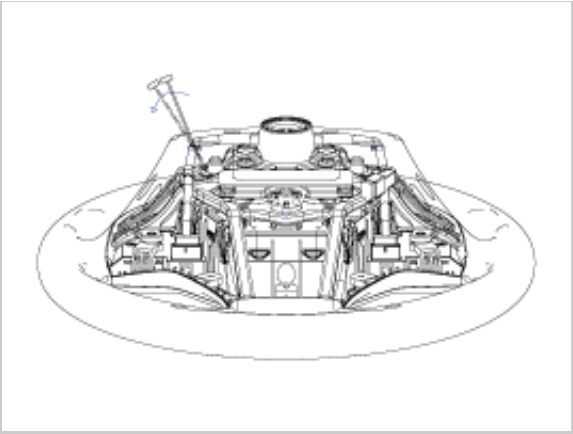
- Removal

1. Set the front tires straight-ahead.
2. Disconnect the battery negative cable and wait for at least three minutes before beginning work.
3. Put a flat tool (Ø5mm) into a guide hole located in the bottom of steering wheel and press a DAB fastening pin.

4. Put a flat tool (Ø5mm) into a guide hole located in the left/right of steering wheel and press a DAB fastening pin.

NOTICE

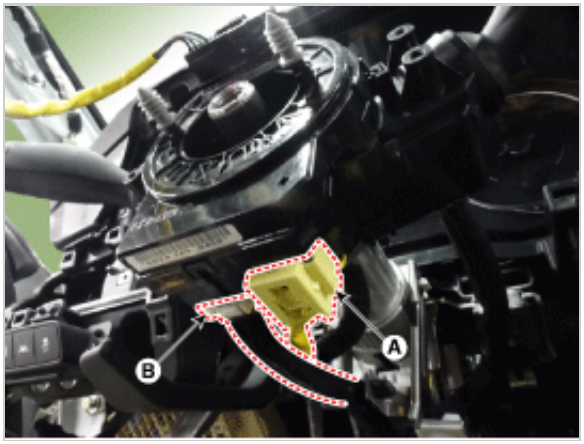
- After inserting the tool (A), press the DAB fastening pin (B) in the direction of the arrow as illustration below.



5. Release the connector locking (A), then disconnect the DAB connector (C) and horn connector (B).

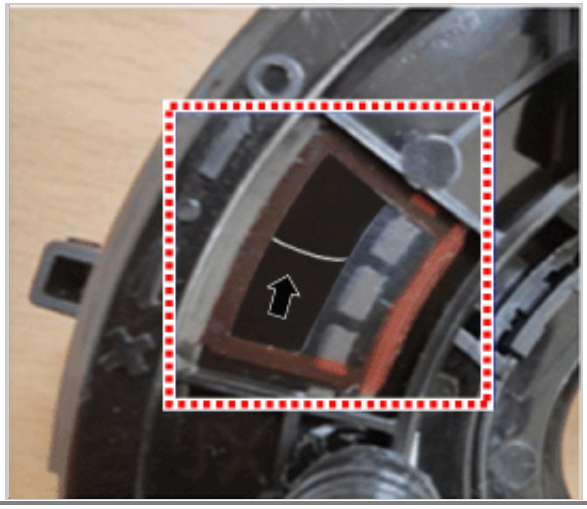
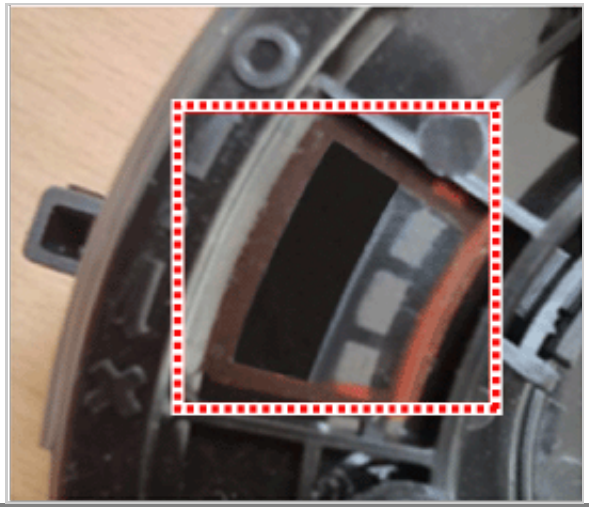
6. Remove the steering wheel.
   (Refer to Steering System - "Steering Column and Shaft")
7. Loosen the steering wheel column shroud panel.
   (Refer to Body - "Steering Wheel Column Shroud Panel")

8. Disconnect the clock spring (A) and horn connector (B), then remove the clock spring.



- Installation

1. Set the front tires straight-ahead.
2. Turn the ignition switch OFF.
3. Disconnect the battery negative cable from the battery and wait for at least three minutes before beginning the work.
4. Connect the clock spring harness connector and horn harness connector to the clock spring.
5. Factory setting for the clock spring is neutral.
   1) If white cable is visible through the product's 10 O' Clock Neutral Check Window, then the spring is at neutral.
   2) If white cable is not visible through the product's 10 O' Clock Neutral Check Window, then manually adjust the setting to neutral.

Neutral Check Window : Normal	Neutral Check Window : Fault
	
White cable is visible through 10 O' Clock Neutral Check Window	White cable is not visible through 10 O' Clock Neutral Check Window

6. Clock spring manual neutral setting procedure.
   (1) Press the Auto Lock at 6 O' Clock and turn clockwise 3 rotations.

(2) Press the Auto Lock at 6 O' Clock and turn counter-clockwise 3 rotations.

(3) If white cable is visible through the 10 O' Clock Neutral Check Window, then the spring is set to neutral.

7. Install the steering wheel column shroud and the steering wheel.
   (Refer to Steering System - "Steering Column and Shaft")
8. Connect the Driver Airbag (DAB) module connector and horn connector, and then install the Driver Airbag (DAB) module on the steering wheel.
9. Connect the battery negative cable.
10. After installing the airbag, confirm proper system operation :
    - Turn the ignition switch ON; the SRS indicator light should be turned on for about six seconds and then go off.
    - Make sure horn button works.

Restraint

- Description

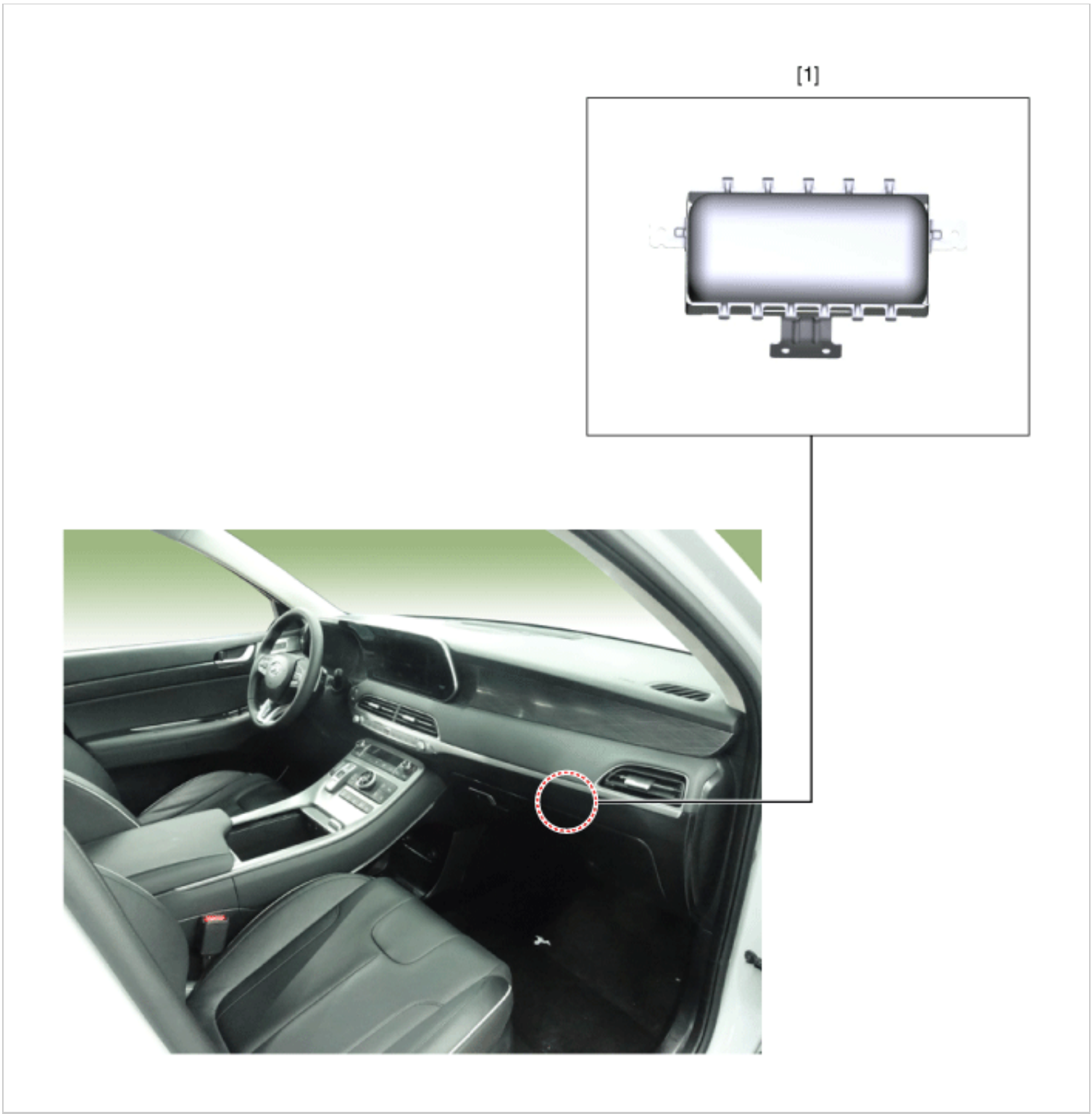
The passenger airbag (PAB) is installed inside the crash pad and protects the front passenger in the event of a frontal crash. The SRSCM determines if and when to deploy the PAB.

⚠ CAUTION

- Never attempt to measure the circuit resistance of the airbag module (squib) even if you are using a specified tester. If the circuit resistance is measured with a tester, accidental airbag deployment will result in serious personal injury.

- Components

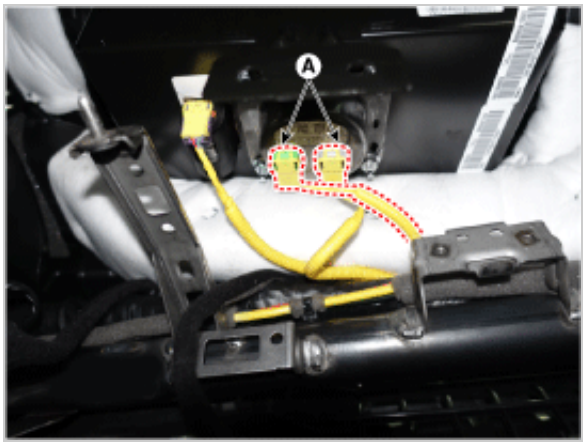
[LHD]



1. Passenger airbag (PAB)

- Removal

1. Disconnect the battery negative cable and wait for at least three minutes before beginning work.
2. Remove the glove box housing.
   (Refer to Body - "Glove Box Housing")
3. Disconnect the passenger airbag connector (A).

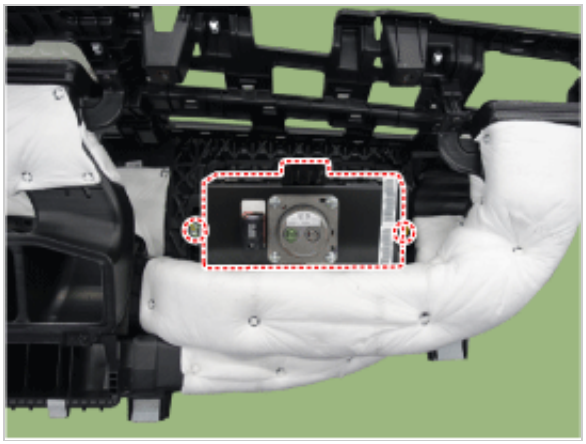


4. Remove the main crash pad.
   (Refer to Body - "Main Crash Pad Assembly")

NOTICE

- Replace the crash pad which is damaged while PAB is deployed.

5. Loosen the mounting bolt and then remove the PAB.



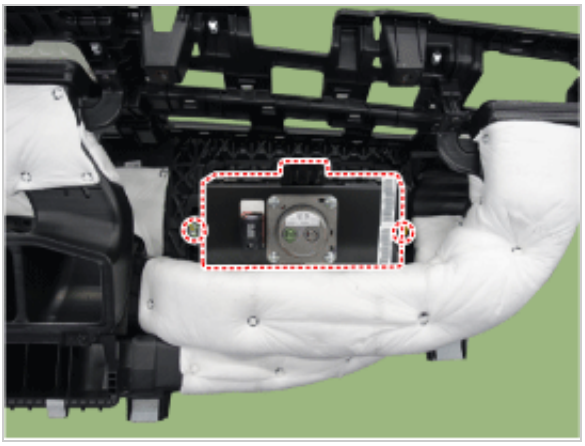
⚠ CAUTION

- The removed airbag module should be stored in a clean, dry place with the airbag cushion up.

- Installation

1. Disconnect the battery negative cable from battery and wait for at least three minutes before beginning work.
2. Place a passenger airbag on the crash pad and tighten the passenger airbag mounting bolts (A).

Tightening torque :
3.9 - 5.9 N.m (0.4 - 0.6 kgf.m, 2.9 - 4.3 lb-ft)



3. Install the main crash pad.
   (Refer to Body - "Main Crash Pad Assembly")
4. Tighten the passenger airbag mounting bolts and then connect the passenger airbag harness connector.

   Tightening torque :
   8.8 - 10.8 N.m (0.9 - 1.1 kgf.m, 6.5 - 8.0 lb-.ft)
5. Install the Glove box housing
   (Refer to Body - "Glove Box")
6. Reconnect the battery cable (-).
7. After installing the passenger airbag, confirm proper system operation :
   Turn the ignition switch ON; the SRS indicator light should turn on for about six seconds and then go off.

Restraint

- Description

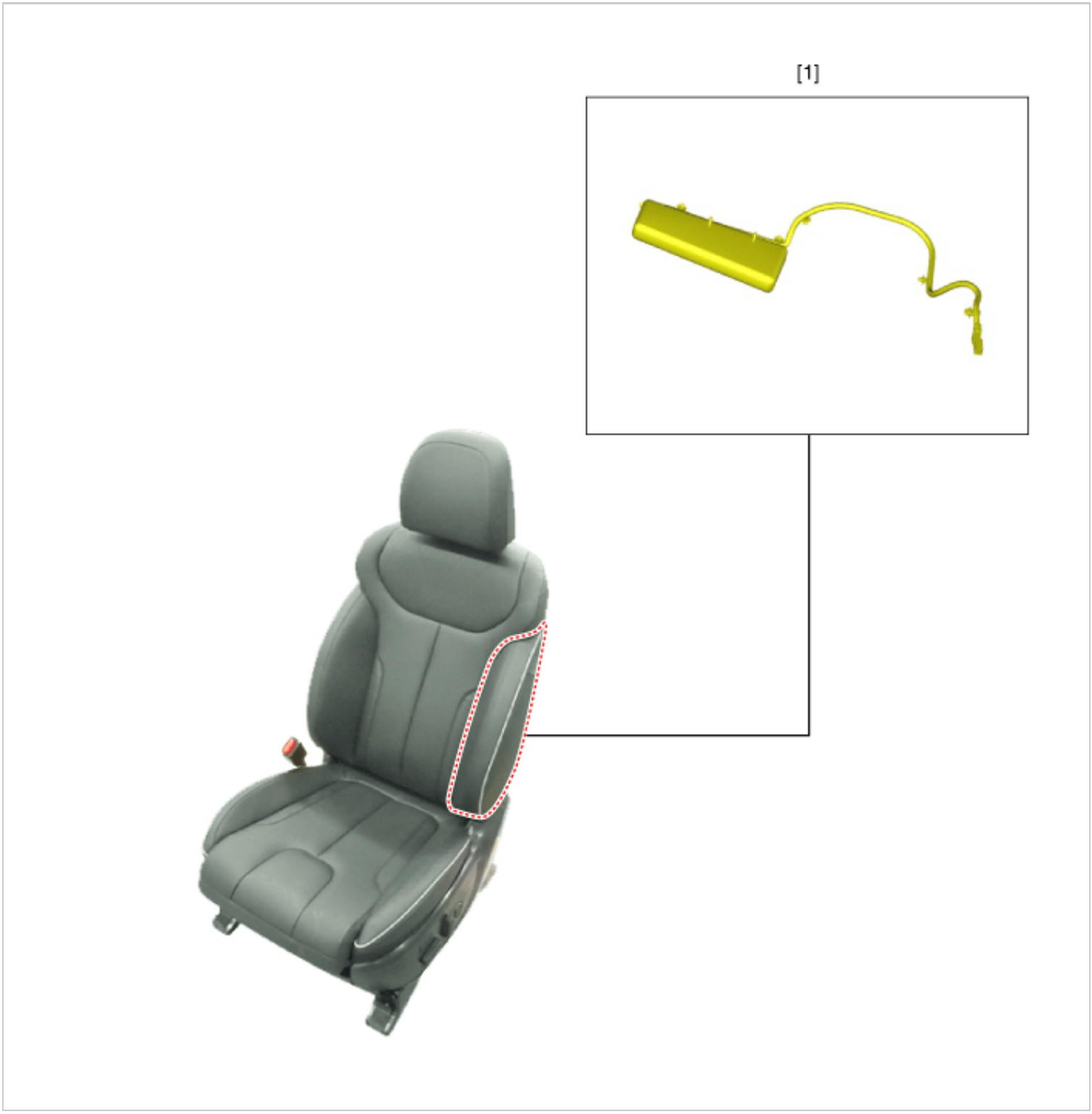
The Side Airbags (SAB) are installed inside the front seat and protects the driver and passenger from danger when a side crash occurs. The SRSCM determines deployment of the side airbag by using the Side Impact Sensor (SIS) signal.

⚠ CAUTION

- Never attempt to measure the circuit resistance of the airbag module (squib) even if you are using a specified tester. If the circuit resistance is measured with a tester, accidental airbag deployment will result in serious personal injury.

Restraint

- Components



1. Side airbag (SAB)

Restraint

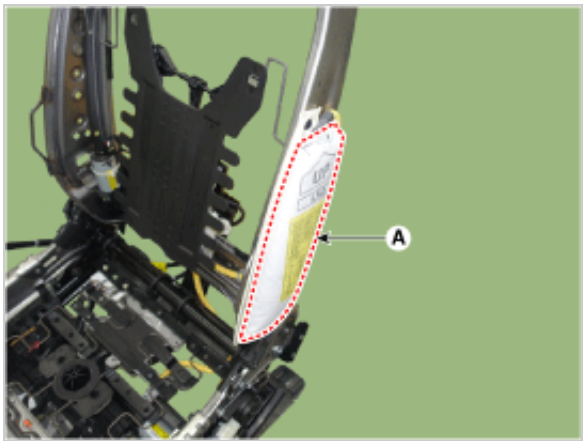
- Removal

1. Disconnect the battery negative cable and wait for at least 3 minutes before beginning work.
2. Remove the front seat assembly.
   (Refer to Body - "Front Seat Assembly")

3. Remove the seat back cover.
   (Refer to Body - "Front Seat Back Cover")

> **NOTICE**
> • When the front side airbag has deployed after a collision, replace the seat back as an assembly.

4. Loosen the SAB mounting nuts and remove the SAB module (A).



> **⚠ CAUTION**
> • The removed airbag module should be stored in a clean and dry place with the cushion side up.

- Installation

> **⚠ CAUTION**
> • Be sure to install the harness wires so they will not pinch or interfere with other parts.

> **NOTICE**
> • Do not open the lid of the side airbag cover.
> • Make sure that the airbag assembly cover is installed properly. Improper installation may prevent a proper deployment.

1. Disconnect the battery negative cable and wait for at least three minutes.
2. Place a side airbag on the side airbag frame and tighten the side airbag mounting bolts.

   Tightening torque :
   5.9 - 7.8 N.m (0.6 - 0.8 kgf.m, 2.9 - 5.8 lb-ft)
3. Install a new seat back cover.
   (Refer to Body - "Front Seat Back Cover")
4. Install the front seat assembly, and then connect the side airbag harness connector.
5. After installing the side airbag (SAB), confirm proper system operation:
   Turn the ignition switch ON; the SRS indicator light should turn on for about six seconds and then go off.
6. Install a front seat assembly.
   (Refer to Body - "Front Seat Assembly")
7. Recline and slide the front seat forward fully, make sure the harness wires are not pinched or interfered by other parts.
8. Reconnect the battery negative cable.

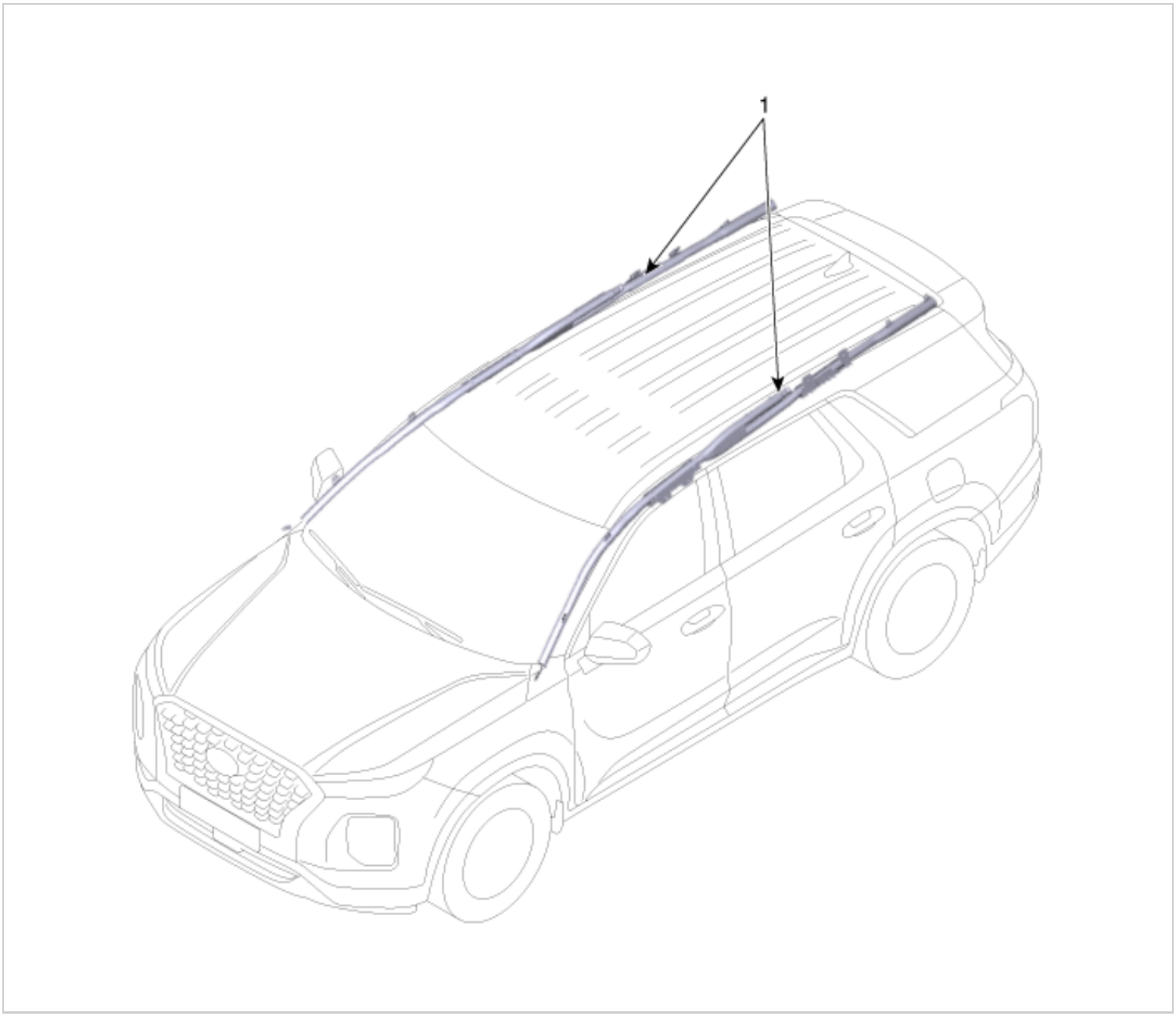
- Description

Curtain airbags are installed inside the headliner (LH and RH) and protect the driver and passenger from danger when a side crash occurs. The SRSCM determines deployment of the curtain airbag by using the side impact sensor (SIS) signal.

⚠ CAUTION

- Never attempt to measure the circuit resistance of the airbag module even if you are using a specified tester. If the circuit resistance is measured with a tester, accidental airbag deployment will result in serious personal injury.

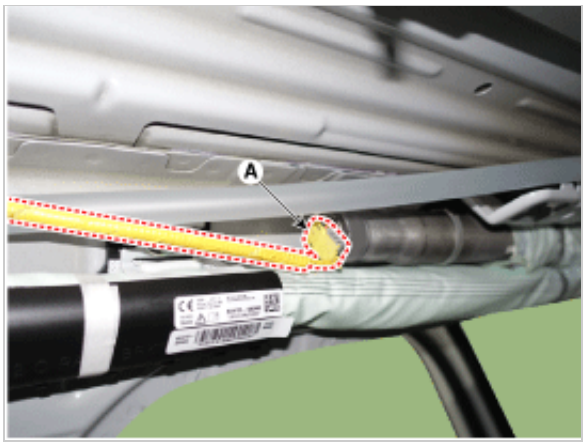
- Components



1. Curtain Airbag (CAB)

- Removal

1. Disconnect the battery negative cable and wait for at least 3 minutes before beginning work.
2. Remove the roof trim assembly.
   (Refer to Body - "Roof Trim Assembly")
3. Disconnect the curtain airbag connector (A).



4. After loosening the mounting bolts & nuts remove the curtain airbag.

- Installation

1. Turn the ignition switch OFF.
2. Disconnect the battery negative cable and wait for at least three minutes.
3. Tighten the curtain airbag mounting bolts.

Tightening torque
Bolts : 7.8 - 11.8 N.m (0.8 - 1.2 kgf.m, 5.8 - 8.7 lb-ft)
Nuts : 3.9 - 5.9 N.m (0.4 - 0.6 kgf.m, 2.9 - 4.3 lb-ft)

⚠ CAUTION
- Never twist the airbag module when installing it. If the module is twisted, the airbag module may operate abnormally.

4. Connect the curtain airbag connector.
5. Install the roof trim assembly.
   (Refer to Body - "Roof Trim Assembly")

6. Reconnect the battery negative cable.
7. After installing the curtain airbag (CAB), confirm proper system operation:
   Turn the ignition switch ON; the SRS indicator light should turn on for about six seconds and then go off.

- Description

The Knee Airbag (KAB) is installed inside the crash pad lower panel and protects the driver in the event of a frontal crash. The SRSCM determines if and when to deploy the KAB.

⚠ CAUTION

- Never attempt to measure the circuit resistance of the airbag module (squib) even if you are using a specified tester. If the circuit resistance is measured with a tester, accidental airbag deployment will result in serious personal injury.

- Components

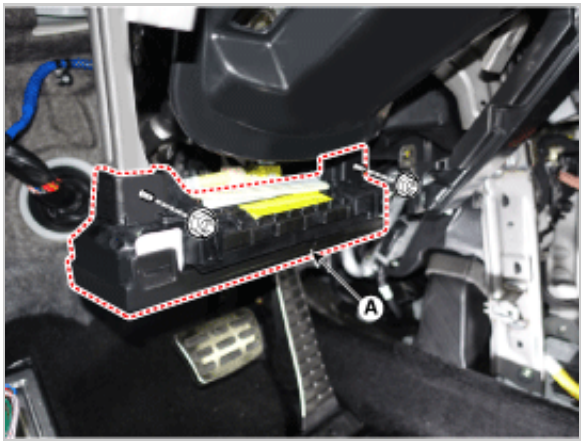
1. Knee airbag (KAB)

Restraint

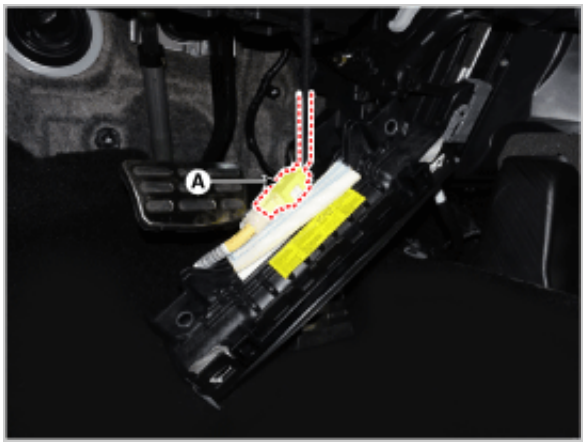
- Removal

1. Disconnect the battery negative cable and wait for at least three minutes before beginning work.
2. Remove the crash pad lower panel.
   (Refer to Body - "Crash Pad Lower Panel")

3. Loosen the mounting nuts and then remove the knee airbag (A).



4. Disconnect the knee airbag connector (A).



- Installation

1. Disconnect the battery negative cable and wait for at least three minutes.
2. Install the Knee airbag .

   Tightening torque :

   7.8 - 11.7 N.m (0.8 - 1.2 kgf.m, 5.7 - 8.6 lb-ft)

3. Install the crash pad lower panel.
   (Refer to Body - "Crash Pad Lower Panel")
4. Reconnect the battery negative cable.
5. After installing the knee airbag, confirm proper system operation.
   Turn the ignition switch ON; the SRS indicator light should turn on for about six seconds and then go off.

- Airbag Disposal

When you scrap a vehicle equipped with an airbag, you must deploy it first.

When you deploy an airbag, you need to have a skilled mechanic do the work. The used airbag should not be reinstalled in another vehicle for reuse.

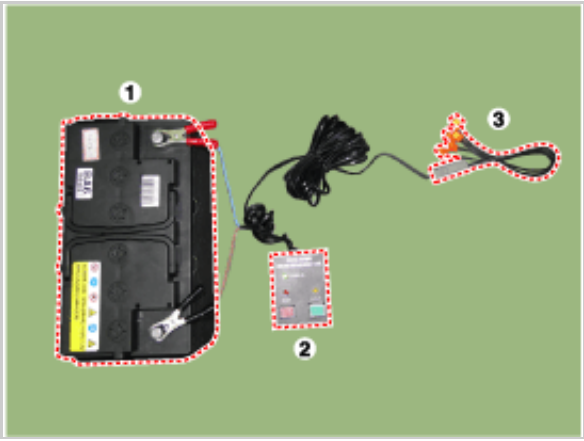
⚠ CAUTION

- Upon deployment, the explosion will create a loud noise, so you have to do it in a proper place not to disturb others.
- When you deploy an airbag, use a specially designated tool and select a place where there is no electric noise.

- When operating the airbag deployment tool, you must be at least 5 meters away from the airbag.
- Upon deployment, the airbag gives off an intense heat. So wait for 30 minutes or so before touching it.
- Make sure to use gloves and safety goggles when you deal with the deployed airbag.
- Do not spread water over the deployed airbag.
- Always wash your hands after the deployment work is completed.

Deploying Airbags in the Vehicle

1. Turn the ignition switch OFF, and disconnect the battery negative cable and wait at least three minutes.
2. Confirm that each airbag or side airbag is securely mounted.
3. Confirm that the special tool is functioning properly by following the check procedure.
   (1) Disconnect the 2P connector between the airbag and wire harness.
   (2) Install the SST
   - For the driver airbag, separate the 2-pin connector from it and connect the deployment adapter to reattach it on the steerin-g wheel.
4. Locate the airbag deployment tool at a place at least 5 meters away from the airbag.
5. After connecting the deployment adapter with the deployment tool (0957A-34100A), connect it to the external battery for deployment.
   (1) Battery (12V)
   (2) Deployment tool (0957A-34100A)
   (3) Deployment adapter
   – DAB, PAB, CAB, BPT (0957A-AL140)
   – SAB (0957A-AL160)



6. Switch on the deployment tool to proceed with deployment.
   (1) If the battery is connected, the POWER ON (1) light will be on.
   (2) Press and hold READY (2) until it is on, and then press DEPLOY (3) to deploy the airbag.

NOTICE

- Upon deployment, the airbag will create a loud noise and you can see it suddenly expand and contract slowly.

7. Dispose of the complete airbag. No parts can be reused. Place it in a sturdy plastic bag and seal it securely.

Deploying the Airbag Out of the Vehicle

In case the airbag is separated from a scrapped car, or when you find defects or damages on it, you have to deploy it as follows :

1. Place the airbag deployment module face upward on a flat surface outdoor.

⚠WARNING

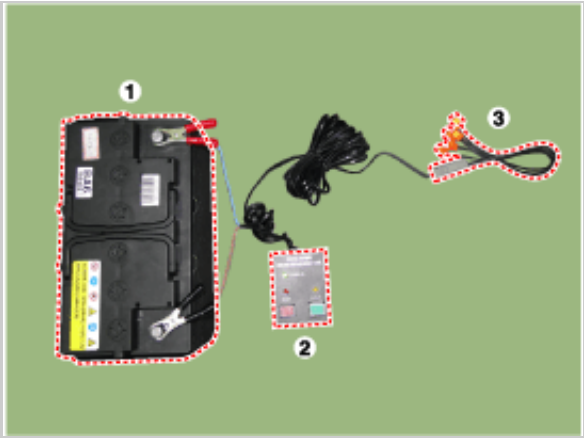
- If the airbag deployment module were face downward, the airbag will pop up and cause damage to people around it.

2. Get ready to deploy the airbag as follows:
   (1) Separate the 2-pin connecter of the airbag from the vehicle.
   (2) Connect the deployment adapter.
   - For the driver airbag, separate the 2-pin connector from it and connect the deployment adapter to reattach it on the steering wheel.
3. Locate the airbag deployment tool at a place at least 5 meters away from the airbag.
4. After connecting the deployment adapter (0957A-AL140, 0957A-AL150, 0957A-3T200) with the deployment tool (0957A-34100A), connect it to the external battery (12V) for deployment.
   (1) Battery (12V)
   (2) Airbag Deploy (0957A-34100A)

(3) Deployment adapter

– DAB, PAB, CAB, BPT (0957A-AL140)

– SAB (0957A-AL160)



⚠ CAUTION

- When EFD are deployed, broken parts are exploded and scattered.
- EFD (Emergency Fastening Device) must be placed in the piled up 5 tires to avoid exploded broken parts.
- Technicians should wear an eye protector and extremely be cautions of exploded broken parts.

5. Switch on the deployment tool to proceed with deployment.

(1) If the battery is connected, the POWER ON (1) light will be on.

(2) Press and hold READY (2) until it is on, and then press DEPLOY (3) to deploy the airbag.

6. Dispose of the complete airbag. No parts can be reused. Place it in a sturdy plastic bag and seal it securely.

Disposal of Damaged Airbag (Not Deployed Airbag)

1. Turn the ignition switch OFF, and disconnect the battery negative cable and wait at least three minutes.
2. If installed airbags in a vehicle, follow the removal procedure of damaged airbag.
3. If the removed parts have a lead wire, make a short circuit by twisting together the two airbag inflator wires.
4. Package the airbag in exactly the same packing that the new replacement part come in.
5. Mark the outside of the box "DAMAGED AIRBAG NOT DEPLOYED" so it does not get confused with your parts stock.

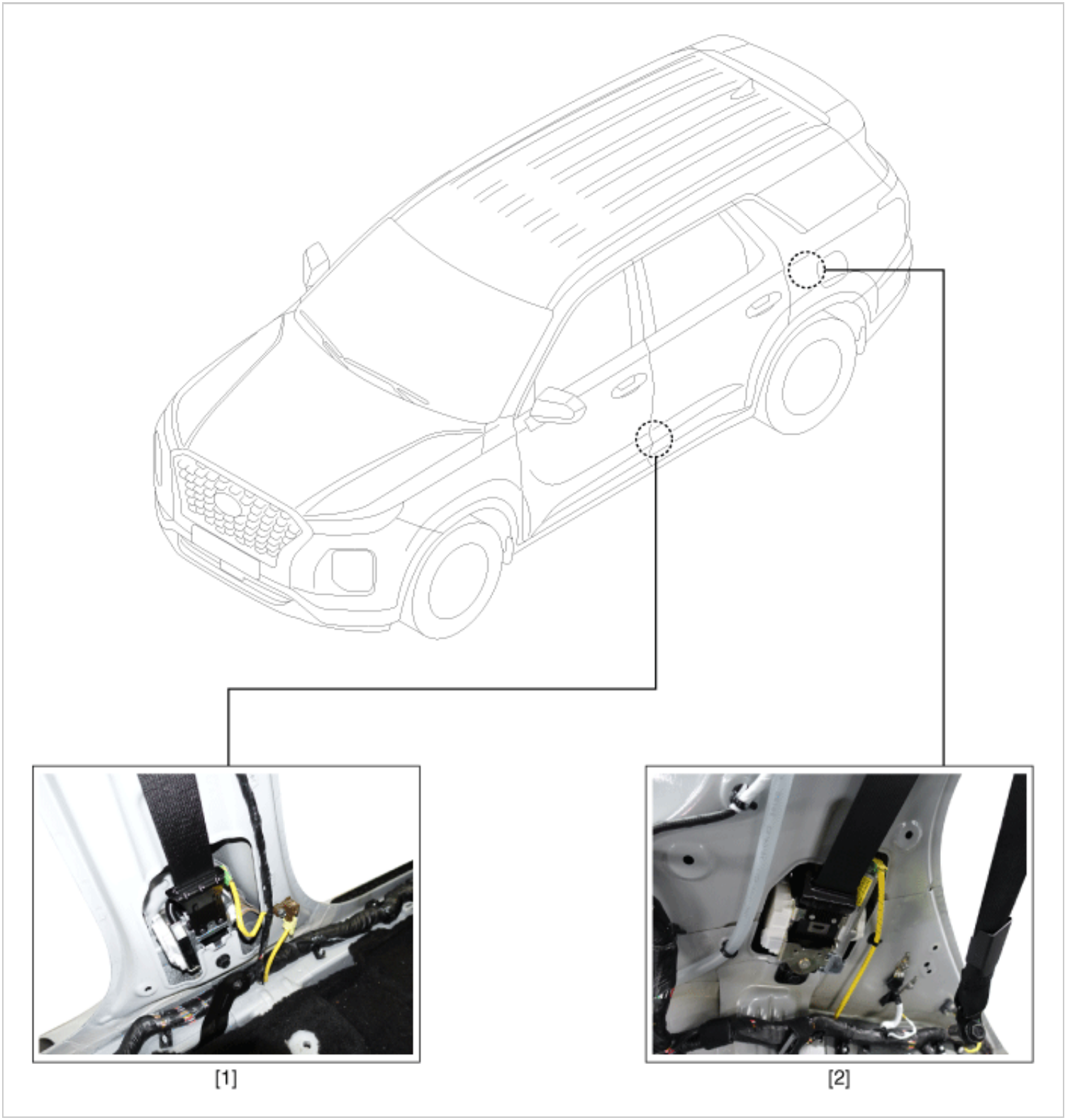
- Description

The Seat Belt Pretensioners (BPT) are installed inside center pillar (LH & RH). When a vehicle crashes with a certain degree of frontal impact, the pretensioner seat belt helps to reduce the severity of injury to the front seat occupants by retracting the seat belt webbing. This prevents the front occupants from thrusting forward and hitting the steering wheel or the instrument panel when the vehicle crashes.

⚠ CAUTION

- Never attempt to measure the circuit resistance of the Seat Belt Pretensioner (BPT) even if you are using a specified tester. If the circuit resistance is measured with a tester, the pretensioner will be ignited accidentally. This will result in serious personal injury.

- Components



1. Front Seat Belt Pretensioner (BPT)
2. Rear Seat Belt Pretensioner (BPT)

- Removal

[Front Seat Belt Pretensioner (BPT)]

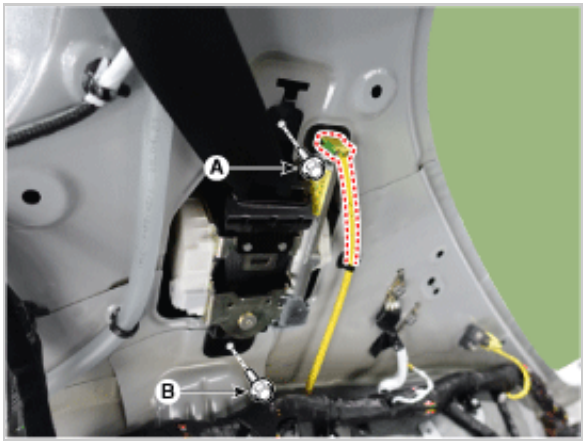
1. Disconnect the battery negative cable, and wait for at least three minutes before beginning work.

2. Remove the center pillar lower trim.
   (Refer to Body - "Center Pillar Trim")
3. Remove the center pillar upper trim.
   (Refer to Body - "Center Pillar Trim")
4. After loosening the mounting bolt, then remove the front seat belt lower anchor (A).

5. Disconnect the seat belt pretensioner connector and then remove the seat belt pretensioner after loosening mouning bolts (A) & (B).

[Rear Seat Belt Pretensioner (BPT)]

1. Disconnect the battery negative cable, and wait for at least three minutes before beginning work.
2. Remove the rear pillar trim.
   (Refer to Body - "Rear Pillar Trim")
3. Remove the luggage side trim.
   (Refer to Body - "Luggage Side Trim")
4. Disconnect the seat belt pretensioner connector and then remove the seat belt pretensioner after loosening mouning bolts (A) & (B).



- Installation

[Front Seat Belt Pretensioner (BPT)]

1. Disconnect the battery negative cable and wait for at least three minutes.
2. Install the seat belt pretensioner.

Tightening torque

Bolt (A) : 7.8 - 11.8 N.m (0.8 - 1.2 kgf.m, 5.8 - 8.7 lb-ft)

Bolt (B) :

39.2 - 53.9 N.m (4.0 - 5.5 kgf.m, 28.9 - 39.8 lb-ft)

3. Install the front seat belt upper anchor bolt.

Tightening torque :

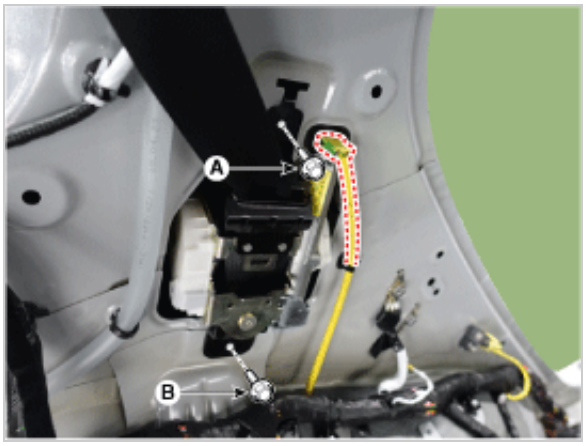
39.2 - 53.9 N.m (4.0 - 5.5 kgf.m, 28.9 - 39.8 lb-ft)

4. Install the center pillar trim.
   (Refer to Body - "Center Fillar Trim")
5. Install the door scuff trim.
   (Refer to Body - "Door Scuff Trim")
6. Reconnect the battery negative cable.
7. After installing the seat belt pretensioner, confirm proper system operation:
   • Turn the ignition switch ON; the SRS indicator light should be turned on for about six seconds and then go off.

[Rear Seat Belt Pretensioner (BPT)]

1. Connect the seat belt pretensioner connector and then install the seat belt pretensioner after loosening mouning bolts (A) & (B).

   Tightening torque
   Bolt (A) : 7.8 - 11.8 N.m (0.8 - 1.2 kgf.m, 5.8 - 8.7 lb-ft)
   Bolt (B) :
   39.2 - 53.9 N.m (4.0 - 5.5 kgf.m, 28.9 - 39.8 lb-ft)



2. Install the rear seat belt lower anchor (A).

   Tightening torque :
   39.2 - 53.9 N.m (4.0 - 5.5 kgf.m, 28.9 - 39.8 lb-ft)

3. Inatall the luggage side trim.
   (Refer to Body - "Luggage Side Trim")
4. Install the rear pillar trim.
   (Refer to Body - "Rear Pillar Trim")
5. Reconnect the battery negative cable.
6. After installing the seat belt pretensioner, confirm proper system operation :

NOTICE

• Turn the ignition switch ON; the SRS indicator light should be turned on for about six seconds and then go off.